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ABSTRACT

A study documented agriculture faculty members' and students' perceptions regarding statements of undergraduate educational mission and objectives. The study involved a stratified random sample of 50 universities that offer undergraduate degree agriculture programs. A purposive sample of faculty members at each was asked to rate the importance of seven objectives, the objectives' attainment by students, and their own and their colleagues' ability to help students achieve the objectives. A random sample of up to 50 graduating senior agriculture students at each university was asked to rate the extent to which they had achieved the objectives and the degree to which the college/school of agriculture activities had help them achieve the objectives. A random sample of nonagriculture students at each university was asked how they perceived the nature and importance of agriculture, agriculture degrees, and agriculture careers. The following are among the findings reported: (1) faculty agree that all seven of the objectives are important; (2) many faculty lack a mission orientation; (3) few comprehensive assessments of students' attainment of educational objectives are being made; (4) responses from agricultural students indicate that agricultural colleges are contributing significantly to the competency achievements of baccalaureate degree graduates but that many graduates are not receiving a well-rounded undergraduate education; and (5) nonagriculture students seem to equate agriculture with farming and ranching. (The document includes a 15-item bibliography and appendices that contain a statement of undergraduate educational mission, undergraduate objectives, and copies of the faculty and student questionnaires.) (CML)

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An Assessment of Undergraduate Education in American Colleges of Agriculture

Part I: PERCEPTIONS OF FACULTY
Part II: PERCEPTIONS OF GRADUATING SENIORS
Part III: PERCEPTION OF OTHER UNIVERSITY STUDENTS

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June 1989

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Preface

This study was conducted with a grant from the Office of Science and Education Administration, United States Department of Agriculture, and with other support from the College of Agriculture, The Pennsylvania State University. The content of the report is the sole responsibility of the authors. Neither the Office of Science and Education Administration, USDA, nor the College of Agriculture, The Pennsylvania State University, accept any responsibility for the content of the report.

The authors would like to express their appreciation to Dale E. Wolf, formerly group vice president, Agricultural Products, Dupont Nemours, Wilmington, DL. (currently lieutenant governor of the State of Delaware) for his counsel and careful review of the survey instruments used in collecting the study data, and to Dr. John P. H. Brand, associate dean for resident instruction, University of Connecticut, for his review of the completed manuscript and suggestions with regard to the recommendations contained in the report. Ms. Cathy Lyons, graduate student, Department of Agricultural and Extension Education and Mrs. Peggy L. Cingel, project secretary, made important contributions to the conduct of the study, and to the analysis and summarization of the data.

Also, assistance in the review of the statements of mission and objectives, the development of the survey instruments, and counsel with regard to the conduct of the study was provided by the following deans of resident instruction: J. H. Mortensen, The Pennsylvania State University; K. W. Reisch, The Ohio State University; William H. Kelly, University of Vermont; D. R. Ford, Virginia Polytechnic University; K. Larson, Iowa State University; J. E. Kunsman, University of Wyoming; T. E. Hartung, University of Nebraska; and J. C. Robertson, University of Kentucky.

In addition, K. J. Coulter, director of higher education programs, Office of Science and Education Administration, USDA as well as G. Rhode, dean of agriculture, University Of Wisconsin, River Falls and Helen Roberts, staff liaison, American Association of State Colleges of Agriculture and Renewable Resources provided valuable assistance and support.

The conclusions of the study, which are critical of undergraduate education in American colleges of agriculture, will very likely spark considerable debate among those whose responsibility it is to monitor and up-date baccalaureate degree programs. The authors are convinced that these criticisms of colleges of agriculture are also descriptive of other colleges in the same universities. However, the salient point is that undergraduate degree programs in agriculture in the U.S. are facing some very significant educational problems. These problems will persist throughout the decade of the nineties and should be viewed with great concern. The solutions are both short-term and long-term. They hinge largely upon effective institutional leadership, and attention to the professional development needs of faculty and the education needs of advanced degree graduates.

While the results of the study may be initially unpopular among the higher agricultural education community, they will be generally embraced by those in agricultural industry who employ baccalaureate degree graduates of colleges of agriculture. It is hoped that the higher education community will respond both directly and positively. To deny or ignore the problems, as was the case three dacades ago when "Silent Spring," was published and two decades ago when "Hard Tomatoes Hard Times" was published, and more recently to the initial calls for greater attention to Low Imput Sustainable Agricultural (LISA), will only compound and delay the solutions to this very important problem. There is an urgent need for immediate support and corrective action by education, industry and legislative officials.

Gene M. Love
Edgar P. Yoder

Executive Summary

Part I: Perceptions of College of Agriculture Faculty

1. There is strong agreement among college of agriculture faculty with regard to the importance of essentially all seven of the undergraduate educational objectives.

2. Faculty agree that it is their responsibility to specify both college and department statements of mission and objectives.

3. Many faculty lack a mission orientation. Many are out of touch with their college and department statements of missions and objectives.

4. There is little evidence that comprehensive assessments of students' achievement of undergraduate educational objectives are being made either at the college or department levels.

5. Faculty perception of students' attainment of the seven objectives, with the exception of knowledge of specifics, is less than satisfactory.

6. There is disagreement among faculty with regard to monitoring students' attainment of the college educational objectives but strong agreement for monitoring students' attainment of the department objectives.

7. There is considerable disagreement among faculty with regard to: (a) inventorying student attainment of the objectives, (b) reinforcing in courses in the major of computer skills, development of values, interpersonal and leadership skills, and (c) providing extra-curricular learning opportunities.

8. Faculty are not satisfied with the effectiveness of communication channels in bringing about educational change.

9. Many faculty give both college and department faculties less than satisfactory ratings in attending to curricular change.

10. A significant number of faculty do not perceive that their institutions are offering them faculty development activities designed to improve their advising, teaching, and/or curriculum building skills. Furthermore, among those institutions offering these activities, a significant number of faculty feel that the activities are not meeting their educational needs.

Part II: Perceptions of Graduating Senior Students

1. There is much evidence to support the conclusion that colleges of agriculture in the U.S. are contributing significantly to the competency achievements of baccalaureate degree graduates. Conversely, there is also considerable evidence to conclude that many graduates are not receiving a well-rounded undergraduate education.

2. Viewed from the perspective of the student, competency achievements in career and job orientation and microcomputer and computer skills were low and did not meet minimum standards. In those cases where the minimum standard was met, competency achievements were only fair for the technical and agricultural skill areas, critical thinking, communication skills, and the development of values. Competency achievements met the minimum standard and were rated good for interpersonal and leadership skill areas.

3. Students reported that the contributions of the college of agriculture to their leadership skills and to microcomputer and computer skills did not meet minimum standards. In the latter case, they did not come close to meeting the standard. It is entirely possible that students viewed leadership activities as being outside the curriculum.

4. The successful achievement of educational program outcomes requires that both faculty and students be oriented to the mission and objectives of the program. As noted previously, there was evidence to conclude that many students are not receiving a well-rounded education as outlined in the seven objectives. This most likely is because faculty are not mission and objective oriented. Thus, the faculty's apparent pre-occupation with the technology of their disciplines is in conflict with meaningful efforts to help students plan for and achieve desired program outcomes.

5. It is evident that many college of agriculture faculty have had little formal educational training. They have been educated in a particular agricultural discipline which places heavy emphasis on research and gives little attention to teaching. Most learn how to teach after they get their first job. They are, in effect, being asked to carry out educational functions that they do not understand. In point of fact, most graduate degree programs focus almost totally on professional courses and students' use of research laboratory equipment and procedures, and ignore or give only tacit attention to students' future teaching needs.

Part III: Perceptions of Other University Students

1. Three out of four non-agriculture university students interviewed perceived agriculture to be synomymous with farming or ranching or crop and livestock production. One out of two agriculture students had the same perception. There is good reason to believe that many prospective college students hold incorrect perceptions of careers available in agriculture and very likely are not giving consideration to career fields that could be of interest to them.

2. Many non-agriculture university students perceive that the purpose of the college of agriculture is to teach agricultural technology, which they equate with farming and ranching. Surprisingly, a high percentage of agriculture students felt the same way. This was particularly true among students in the earlier years of university enrollment.

3. Both non-agriculture and agriculture university students perceived agricultural graduates to be entering farming and ranching careers even though less than seven percent of college graduates are entering these careers.

4. Two thirds of the non-agriculture university students perceived the employment prospects for agricultural graduates to be less than good. Over half of the agriculture students held the same perception.

5. Seventy-five percent of all university students interviewed perceived that the agricultural sector was important to the global economy.

6. The evidence of this study points out that college students, and most likely the public in general, have failed to distinguish the difference between farming and ranching, and the many off-farm and off-ranch agricultural careers. Thus, the term agriculture conveys the same negative career connotations associated with farming and ranching.

Recommendations

1. It is recommended that the Resident Instruction Committee on Organization and Policy (RICOP), National Association of State Universities and Land Grant Colleges, (NASULGC) and the American Association of State Colleges of Agriculture and Renewable Resources, (AASCARR) provide the leadership for the development of: (1) model statements of mission and of undergraduate educational objectives and (2) suggested guidelines for the process and product evaluation and assessment of B.S. degree study programs. The mission and objectives used in this study could serve as a point of departure. The statements of mission and objectives as well as the guidelines and standards are essential prerequisites to other program development and improvement needs. Education leaders in colleges of agriculture need this type of assistance.

2. It is recommended that the Office of Science and Education Administration, USDA, seek authorizations and appropriations from the U.S. Congress for the purpose of establishing four strategically located regional Faculty Development Centers. The centers would provide educational opportunities for faculty (supported by in-kind institutional funds) from all agriculture disciplines for the purpose of addressing the important constraints to improved undergraduate program outcomes. A high priority of the centers would be to promote and encourage periodic and comprehensive assessments of the outcomes of baccalaureate degree agriculture programs in all regions of the U.S. Another high priority would be to assist in the generation of a higher degree of concensus among all faculty and administrators with regard to the mission and objectives of a well-rounded undergraduate education.

Still another high priority would be to provide short-term, intensive training programs whereby faculty could learn improved techniques for advising and teaching students in the attainment of educational objectives. Included would be ways and means of improving the learning opportunities for students.

The Office of Higher Education Programs, U.S.D.A., is to be commended for its leadership in the initiation of the "Challenge Grants Programs." If the program is properly funded, it will provide needed incentive and support from state institutions for such things as curriculum development, faculty development, experiential learning, instructional development (including regional and joint university programs), career access and recruitment.

3. It is recommended that colleges of agriculture assume greater responsibility for graduate degree program standards. This responsibility should not be left entirely in the hands of the institution's graduate faculty. Everyone's responsibility can sometimes be no one's responsibility. Since many advanced degree recipients ultimately end up teaching, it is important that they receive basic education in the art and science of teaching. All graduates should take courses in "College Teaching," and "Course and Curriculum Development and Program Evaluation." Furthermore, each graduate student should receive at least one semester of supervised experience in teaching.

4. It is also recommended that newly hired faculty be provided with a carefully structured and organized orientation program which emphasizes (a) the importance of teaching and advising and (b) the availability of institutional resources in support of teaching and learning.

5. It is recommended that RICOP with the support of the National Association of State Universities and Land Grant Colleges (NASULGC) establish a national commission to study ways of clarifying the distinctions in the definitions of agriculture, and of farming and ranching, especially among prospective college students. The charge to the commission should be to develop a plan outlining alternative strategies for informing prospective students and others of the correct meaning of agriculture and about the attractive off-farm and off-ranch agricultural careers.

6. Finally, it is recommended that some colleges of agriculture should give consideration to changing their name to more accurately reflect the diversity of their study programs and the types of careers in which their graduates become employed. For example, "College of Food and Agriculture," or "College of Food, Agriculture and the Natural Sciences," or "College of Agriculture and Renewable Natural Resources" would more accurately communicate to prospective students the nature of the curricula and the diversity of careers reflected in the majors than does "College of Agriculture."

Table of Contents

1. **An Assessment of Undergraduate Education in American Colleges of Agriculture, Part I: Perceptions of Faculty..... 1**
2. Historical Background........ 1
3. Purpose........ 5
4. Research Questions........ 5
5. Sample........ 7
6. List of Cooperating Institutions by Regions........ 8
7. Methods and Procedures........ 9
8. Hypotheses........ 11
9. Faculty Background Information........ 14
10. Results and Discussion: Mission and Objectives........ 15
11. Table 1. Summary of Faculty Responses Regarding Mission and Objectives........ 18
12. Results and Discussion: Student Outcomes........ 21
13. Table 2. Summary of Faculty Responses to Ways of Monitoring Students' Attainment of the Seven Undergraduate Educational Objectives........ 23
14. Table 3. Responses of Faculty to Questions about Program Outcomes, Course and Curricula Committees, and Faculty Development Activities........ 27
15. Results and Discussion: College and Department Communication Channels........ 29
16. Table 4. Faculty Ratings of the Effectiveness of College and Department Communication Channels........ 31
17. Results and Discussion: Faculty Effectiveness in Curricular Change........ 32
18. Results and Discussion: Institutional Faculty Development Activities........ 33
19. Results and Discussion: Importance and Attainment of Undergraduate Educational Objectives........ 34
20. Table 5. Faculty Perceptions of the Importance and Attainment of the Seven Undergraduate Educational Objectives for Students in Their Departments........ 36
21. Table 6. Faculty Perceptions of the Importance of the Seven Undergraduate Educational Objectives Reported by Regions........... 37

22. Table 7. Faculty Perceptions of the Attainment of the Seven Undergraduate Educational Objectives by Graduating Senior Students Reported by Regions 38
23. Results and Discussion: Faculty Perception of Teaching Ability.... 42
24. Table 8. Summary of Faculty Perceptions of Their Ability to Teach the Seven Undergraduate Educational Objectives Reported by Region 43
25. Table 9. Summary of Faculty Perceptions of The Department Faculty's Collective Ability to Teach the Seven Undergraduate Educational Objectives Reported by Region 44
26. Conclusions and Recommendations, Part I 45

27. **An Assessment of Undergraduate Education in American Colleges of Agriculture, Part II: Perceptions of Graduating Seniors** 49
28. Background Information 49
29. Method of Testing the Hypotheses 50
30. Table 10. Standards of Quality Used to Evaluate Students' Ratings of Their Competence and of Study Programs in the Seven Undergraduate Objectives 50
31. Research Questions 51
32. Research Hypotheses 52
33. Table 11. Summary of Background Data Regarding College of Agriculture Graduating Senior Students Reported by Region 52
34. Results and Discussion: Student Skills 53
35. Table 12. Summary of Graduating Senior Agriculture Students' Evaluations of Their Attainment of the Seven Undergraduate Educational Objectives 54
36. Table 13. Summary of Quality Standards Assigned to College of Agriculture Undergraduate Programs 55
37. Table 14. Summary of Graduating Senior Ratings of the Contributions of Curricular and Extra-curricular Activities in the College of Agriculture to Their Competency Achievements in Seven Undergraduate Educational Objectives 59
38. Table 15. Summary of "Minimum" Program Standards Reported by Undergraduate Educational Objective 60
39. Conclusions and Recommendations, Part II 62

40. **An Assessment of Undergraduate Education in American Colleges of Agriculture, Part III: Perceptions of Other University Students** 64
41. Purpose 64
42. Characteristics of Students in the Sample 65
43. Research Questions 66
44. Results and Discussion: Perception of Agriculture 66
45. Table 16. Summary of the Descriptors Most Frequently Used by University Students to Define Agriculture Reported in Number and Percent 67
46. Results and Discussion: Perception of the Basic Purpose of College of Agriculture 69
47. Table 17. Summary of Descriptors Most Frequently Used by University Students to Describe the Basic Purpose of the College of Agriculture 70
48. Results and Discussion: Agricultural Careers 70
49. Results and Discussion: Prestige of Agricultural Careers 71
50. Table 18. Responses of Students to the Importance of Agricultural Careers 71
51. Results and Discussion: Employment Prospects 72
52. Table 19. Students Perceptions of the Employment Prospects for Agriculture Graduates During the Succeeding Five Year Period, by Number and Percent 72
53. Results and Discussion: Ag Sector in the Global Economy 73
54. Table 20. Students' Perceptions of the Importance of the Agricultural Sector to the Role of the U.S. in the Global Economy 74
55. Conclusions and Recommendations, Part III 74

56. Bibliography 76

57. Appendix A 79

58. Appendix B 80

59. Appendix C 81

60. Appendix D 89

61. Appendix E 92

AN ASSESSMENT OF UNDERGRADUATE EDUCATION IN AMERICAN COLLEGES OF AGRICULTURE

PART I: PERCEPTIONS OF FACULTY

Historical Background

This national study grew out of extensive discussions among the membership of the Resident Instruction Committee on Organization and Policy (RICOP), National Association of State Universities and Land Grant Colleges (NASULGC), regarding the direction and quality of undergraduate programs in colleges of agriculture in the U.S. The discussions occurred over a period of several years, beginning in 1980 and continuing through 1987.

Enrollment Changes

Undergraduate education in agriculture was emerging from a high growth period during the late seventies and early eighties. Undergraduate student enrollments were higher than they had ever been since the post-World War II era. The composition of the undergraduate student body had changed. The proportion of women as well as urban and suburban students enrolled in agricultural curricula had increased significantly. Conversely, the percentage of students from farms and ranches had declined.

In the latter part of the seventies, in part as a result of increases in enrollments, faculty were burdened with larger classes and increased teaching loads and advising responsibilities. Neither the content nor the direction of the undergraduate curricula were foremost in the minds of faculty or program administrators. Comprehensive and broad-based efforts to evaluate and critically examine undergraduate education in agriculture were essentially non-existent.

Concerns Regarding Program Quality

On the other hand, the quality of undergraduate education was a frequent topic of discussion and conversation among the RICOP Deans of Resident Instruction beginning in the late seventies and extending well into the eighties. It would not be unfair to say that during the early part of the period most deans still felt, as did most faculty and program heads, that undergraduate programs were "not broken;" and therefore not in need of "fixing." There was a popular belief among many faculty, if not most, that agricultural science was "neutral" and, thus, the faculty's primary responsibility was to teach "technology." A few deans were critical of the emphasis being placed on the teaching of technology to the exclusion of the teaching of principles related to the implications inherent in the application of technology. Calls for comprehensive assessments of undergraduate programs were being heard for the first time.

A paper by Baer (1:1980) most likely sparked the initial movement within the RICOP membership to evaluate undergraduate education in agriculture. In particular, Baer's presentation led to a deep-seated concern among some deans that agriculture colleges were moving away from the principal purposes of university baccalaureate degree programs. Some charged that colleges of agriculture were becoming technical institutes, i.e., devoting too much time in the curriculum to technology and not enough to life-long learning skills that would lead to a well-rounded education.

Another paper by Paarlberg (2:1981), "The Land Grant Colleges and the Structure Issue," extended the discussions regarding the quality of undergraduate education among the RICOP members during 1982 and subsequent years. Paarlberg questioned the assumptions "(1) that research and education are structurally neutral, and (2) that technology is socially neutral" (p.129). He raised questions which had an impact on the future role of the agriculture college in addressing the social implications of research and technology in undergraduate programs. The validity of the belief among many faculty that they taught technology and that it was not their job to help students to learn to evaluate the social implications of technology was placed at risk. Also questioned was the content of courses and curricula, the choice of teaching methods and the planning of learning activities for undergraduate programs.

The Northeast Higher Education Committee (NHEC), a sub-committee of the Northeast Regional Council and the Joint Council on Food and Agricultural Science, USDA, published a paper titled, "Securing America's Food and Agricultural Resource Base." (3:1982). The committee was composed of agriculture faculty and administrators from a wide range of agricultural disciplines found in land grant colleges in 13 Northeastern states as well as representatives of agricultural industry.

The NHEC paper emphasized that there were "some very serious educational problems in [undergraduate education in] agriculture which need[ed] immediate attention" (p.20). The paper proposed the general adoption and systematic use of statements of undergraduate educational philosophy and mission, and educational objectives and goals (pp.13-17). The NHEC noted:

> Generally speaking, most faculty perceive their educational task to be one of subject matter building, course selection, and/or credit counting as opposed to one of planning educational activities to meet human needs in a changing society., .it is apparent that agricultural curricula must be adjusted more systematically and more frequently to meet the future needs of graduates. (p.13)

A paper by Schuh titled "Revitalizing the Land Grant University (4:1984) produced intense discussion and debate when circulated among the RICOP membership. Schuh suggested that land grant institutions had "lost their way." (p.31), and that there was a "strong bent toward disciplinary orientation" (p.3) rather than a mission orientation. His paper had a profound effect upon the thinking of many RICOP deans. Beginning in 1984, calls for action to carefully study the needs of undergraduate education and to initiate appropriate reform were heard regularly at RICOP meetings.

The Joint Council on Food and Agricultural Science (5:1985) noted that the "curriculum must be strengthened if the system [of undergraduate education] is to produce graduates at the forefront of knowledge and technology." (p.13)

Beginning as early as 1980, and perhaps even before, agricultural industry representatives were publicly criticizing the quality of higher education programs in general and agricultural education in particular. These representatives addressed the undergraduate's lack of practical experience, inability to solve problems and communicate effectively, lack of leadership, management and accounting skills, and inability to "get along."

A national manpower study report by Coulter and Stanton (6:1980) revealed projected short-falls in higher education graduates during the succeeding ten year period.

At the USDA-sponsored National Challenge Forum on Higher Education held in Washington, D.C., in 1984, a high-technology agricultural industry representative noted, much to the surprise of some educators in attendance, that colleges of agriculture should teach undergraduates how to solve problems and let industry teach the needed agricultural technology. The implication was that agricultural technology changed so rapidly that it was pointless to make it the central focus of undergraduate education.

While agricultural industry representatives generally were very supportive of undergraduate education during this period, there were a few occasions when the criticisms were extreme. One forestry industry employer privately expressed his frustration with the over-emphasis on theory in the B. S. degree curriculum to the exclusion of practical experience and said that some of the baccalaureate degree graduates he had hired "couldn't find their way out of the forest." The most frequent criticism from employers was the agricultural graduate's lack of management skills.

By the summer of 1985, more deans were expressing their concerns that agricultural graduates lacked important basic skills essential to a well-rounded undergraduate education. Among the basic skills mentioned were writing, speaking, problem-solving, critical thinking, and development of values. A few even questioned the availability and use of purposeful statements of mission and objectives in agricultural colleges and departments.

During this time, several national studies critical of the undergraduate experience were published and received much national attention. Included were studies conducted by the National Institute of Education (8:1984), The American Association of Colleges (9:1985), American Association of State Colleges and Universities (10:1986), and The Carnegie Foundation, (Boyer,11:1987). About the same time, Dr. K. Jane Coulter, director of higher education programs for USDA (7:1985) was urging government, industry and education representatives to unite in an effort to revitalize the image of food and agricultural sciences in higher education. (p. 19-22)

The outcome of these expressions of concerns was the initiation by RICOP deans of several national projects designed to provide undergraduate education in agriculture with a new sense of direction. In addition to this study, there were projects by Merritt, Campbell and Sledge.

Merritt (12:1985) initiated the National Agriculture and Natural Resources Curriculum Project with the support of the Office of Science and Education Administration, USDA. Later, privately funded organizations interested in higher education pledged a significant amount of additional support. The Project identified several long-term curriculum areas of concern to agricultural faculty. New courses in agricultural systems analysis, and in ethics and public policy were developed. In addition, selected undergraduate agriculture teaching faculty from land grant institutions from all regions of the country were provided with teaching resources and the opportunity to learn how to teach the new courses.

Dr. John R. Campbell, formerly dean of the college of agriculture at the University of Illinois and currently president of the Oklahoma State University, initiated a faculty development research project in 1982 with the assistance of the Office of Science and Education Administration, USDA. The project was later carried out and completed by Chudzinski, Simerly, and George (13:1988). It identified and surveyed the perceptions of faculty with regard to their involvement in and their needs for faculty development.

Sledge (14:1987) initiated the Northcentral Curricular Project. The purposes were to strengthen curricula to benefit future students and to protect the high-quality supply of human expertise for food and agricultural science. The project was designed to identify for the Northcentral Region the basic components, including concepts and philosophical issues for new curricular models.

Purpose

During March of 1987, The National Assessment of Undergraduate Education in American Colleges of Agriculture was initiated by personnel at The Pennsylvania State University. The central purpose of the study was to document the perceptions of agriculture faculty and students regarding statements of undergraduate educational mission and objectives.

More specifically, faculty were asked to rate the importance of seven objectives, their attainment by students, and their own ability and that of faculty colleagues in their department to collectively help students achieve the objectives. Graduating senior agriculture students were asked to rate the extent to which they had attained the objectives. They were also asked to evaluate the degree to which they perceived that undergraduate curricular and extra-curricular activities in the college/school of agriculture contributed to their achievement of the objectives. In addition, non-agriculture students at each institution were surveyed to determine their perceptions of the nature and importance of "agriculture," "agricultural" careers, and "agricultural" degree programs.

Research Questions

Mission and Objectives:

1. Do faculty perceive that their college and department have written statements of undergraduate educational mission and objectives?

2. Do faculty perceive that their colleagues have a working knowledge of their college and department statements of undergraduate educational mission and objectives?

3. Can faculty describe, from memory, the undergraduate educational mission and list the undergraduate educational objectives of their college and department?

4. Do faculty perceive a need for specifying the undergraduate educational mission and objectives of the college and department?

Evaluation of Student Outcomes:

5. What do faculty perceive their role to be in monitoring students' attainment of undergraduate educational objectives?

6. Do faculty perceive that periodic efforts are being made in their college and/or department to determine the extent to which the undergraduate objectives are being achieved by graduates?

Communication Channels:

7. Do faculty perceive the existence of course and curricula committees in their college and department?

8. To what degree do faculty perceive that the college and department communication channels are effective in bringing about curricular changes?

Attention to Curricular Change:

9. To what degree do faculty perceive that college and department faculty are effective in attending to curricular change?

10. Do faculty perceive that their university, college, and/or department are attending to faculty development in an effort to improve advising, counseling, teaching, and/or curriculum building skills?

Faculty Development

11. To what degree do faculty perceive that faculty development activities at their institutions are effective?

Faculty Evaluation of Proposed Undergraduate Objectives:

12. Do faculty agree on the importance of a well-rounded education as reflected in the seven undergraduate educational objectives?

13. Do faculty perceive that undergraduate students enrolled in their respective departments attain minimum job or graduate school entry-level competence by the time they graduate?

14. Do faculty perceive that they possess the ability to teach the seven undergraduate educational objectives?

15. Do faculty perceive that their department colleagues possess the collective ability to teach the achievement of the seven undergraduate educational objectives?

Sample

A stratified (strata included types of institution and geographical regions) random sample of fifty universities offering undergraduate degree programs in agriculture was identified. Institutions were drawn from among the four regions affiliated with the Resident Instruction Committee on Organization and Policy (RICOP), National Association of State Universities and Land Grant Colleges (NASULGC); and the American Association of State Colleges of Agriculture and Renewable Resources (AASCARR). Among the fifty institutions in the sample, thirty-eight were RICOP institutions and twelve were AASCARR institutions. Among the thirty-eight RICOP institutions, thirty-one were 1862 and seven were 1890 land grant universities.

At each institution, samplings of faculty, graduating senior agriculture students and selected undergraduate students were surveyed. The sample of faculty was purposive. They were selected by the department head, and included, in addition to himself, one professor, one associate professor and one assistant professor, all of whom had major teaching assignments. The sample of graduating senior agriculture students was randomly chosen by the dean of resident instruction at each institution and included a sample of up to 30 students from the 1987 Spring semester/term graduating class. The sample of non-ag students was selective. Up to fifty students at each institution were interviewed on the basis of interest and willingness to respond to interviewers' questions when approached on a random basis. The dean of resident instruction was also asked to complete a questionnaire.

List of Cooperating Institutions by Region

NORTHEAST REGION

University of Connecticut
University of Maine
University of Maryland, Eastern Shore
University of New Hampshire
Cornell University
The Pennsylvania State University
University of Vermont

SOUTHERN REGION

University of Alabama
University of Arkansas
University of Arkansas, Pine Bluff
Arkansas State University
Western Kentucky University
Florida A&M University
Texas Tech University
University of Florida
Louisiana State University
North Carolina A&T University
North Carolina State University
Tennessee State University
Sul Ross State University
University of Tennessee, Knoxville
Texas A&M University
Virginia Polytechnic Institute and State University
Louisiana Tech University
Tennessee Technological University
Sam Houston State University

CENTRAL REGION

University of Illinois
Purdue University
University of Kentucky
University of Minnesota
Lincoln University, Missouri
University of Missouri, Columbia
University of Nebraska, Lincoln
The Ohio State University
Illinois State University
Southern Illinois University
Western Michigan University
Southwest State University, MN
Southeast Missouri State University
Southwest Missouri State University
University of Wisconsin, River Falls
Ball State University

WESTERN REGION

California Polytechnic State University
University of California, Davis
Colorado State University
California State University, Chico
Washington State University
University of Wyoming
Arizona State University
University of Arizona

Methods and Procedures

Assumptions

The study was based on five assumptions. First, it was assumed that statements of mission and objectives are prerequisite to purposeful undergraduate program outcomes and that the validated statements of mission and objectives used in the study were an accurate reflection of a well-rounded education as well as the needs of undergraduate agricultural students.

Second, it was assumed that the validity of undergraduate program content, the faculty's general program orientation and the expected program outcomes would be reflected in the faculty's knowledge of the mission and objectives and in their perceptions regarding the adequacy of the communication channels used in the college and department.

Third, it was assumed that faculty could accurately assess whether or not they possessed the ability to teach the achievement of the seven objectives to their students, and whether or not their department colleagues collectively had the ability to teach the achievement of the objectives.

Fourth, it was assumed that faculty could assess whether or not their students were achieving the objectives and that students would also be able to assess whether or not they were achieving the objectives.

Fifth, it was assumed that the perceptions of non-agriculture students with regard to the term "agriculture" and of "agricultural" careers, including the value of the careers associated with undergraduate programs in agriculture, would be a fairly good reflection of the perceptions of prospective college students.

Planning the Study

The study began with the formulation and validation of the statements of: (1) undergraduate educational mission and (2) undergraduate educational objectives, for agriculture colleges. These statements were initially formulated at The Pennsylvania State University during the 1981 academic year. The first draft of each statement was prepared by the Office of the Associate Dean for Resident Education. They were reviewed and revised by the Faculty Advisory Committee to the Resident Education Office as well as by faculty in the College of Agriculture preceding, during and following a series of faculty development workshops.

About the same time, the Northeast Higher Education Committee used the Penn State statements to prepare and adopt suggested national statements of undergraduate mission and philosophy, and objectives. The first draft of the statements used in this study came from these sources. The statements were reviewed, revised and validated by resident instruction deans and faculty from selected other agricultural institutions before the final draft was adopted. These statements are found in Appendix A and B.

The statement of mission focuses on the land grant philosophy. Attention is directed to the present and future needs of society met through the individual needs of students. Responsibility for planning and conducting undergraduate programs is assigned to department and college faculties. The seven objectives seek to develop not only technical and agricultural competence among graduates but also life-long learning skills such as critical thinking, communication skills, formulation of values, and interpersonal and leadership skills.

A faculty survey (Appendix C), a graduating senior agriculture student survey (Appendix D), and a randomly chosen undergraduate student survey (Appendix E) were constructed, field-tested and validated.

Data Collection

Resident instruction deans at the fifty cooperating institutions were asked to administer the surveys through their offices in the following manner. Each department head was to be asked to distribute the faculty surveys in his or her department and to ask the faculty to return them directly to the researchers. The dean of instruction was asked to oversee the selection of a random sample of graduating seniors and the administration and return of the completed surveys. In addition, the dean was asked to employ a qualified interviewer to solicit the information in the randomly chosen undergraduate student survey and return the completed survey instruments to the researchers.

The surveys were mailed to deans of resident instruction in March of 1987. They were asked to follow through immediately with the distribution and administration of the surveys, in particular with the students. The vast majority of the surveys were completed and returned by the middle of June.

Data Analysis

Data were extracted from the returned survey instruments, coded and transferred to computer tapes for statistical analysis. The initial analysis consisted of the compilation of background data describing the respondents, in terms of numbers and percentages of the various faculty responses.

Criteria for Testing the Hypotheses

Evaluation of these data was carried out as follows. For most descriptive data, it was assumed that if there was as much as ten percent variation in faculty responses for an item, or in some cases a combination of answers to selected items on the survey, then this would constitute a significant variation in response.

The term "less than satisfactory" is used in some cases to sepatate "Fair" and "Poor" from "Excellent" and "Good" ratings given in response to selected questions.

Regional comparisons were made of the distribution of survey responses among and/or between faculty and/or students using the Chi Square statistic and Cramer's V, with a .05 confidence level.

Hypotheses

Mission and Objectives:

1. Essentially faculty across all regions are aware of the existence, at their institutions, of written statements of:

   a. college mission,
   b. college objectives,
   c. department mission, and
   d. department objectives.

2. Essentially faculty across all regions perceive that their faculty colleagues have a working knowledge of statements of:

   a. college mission,
   b. college objectives,
   c. department mission, and
   d. department objectives.

3a. Essentially faculty across all regions can, from memory, describe the undergraduate educational missions of their:

   a. college, and
   b. department.

3b. Essentially faculty across all regions can list the undergraduate educational objectives of their:

a. college, and
b. department.

4a. Essentially faculty across all regions agree that college faculty bear the primary responsibility for specifying the college undergraduate educational:

a. mission, and
b. objectives.

4b. Essentially faculty across all regions agree that department faculty bear the primary responsibility for specifying the department undergraduate educational:

a. mission, and
b. objectives.

Evaluation of Student Outcomes:

5a. Essentially faculty across all regions agree that college faculty bear the primary responsibility for monitoring the attainment of the college undergraduate educational:

a. mission, and
b. objectives.

5b. Essentially faculty across all regions agree that department faculty bear the primary responsibility for monitoring the attainment of the department undergraduate educational:

a. mission, and
b. objectives.

5c. Essentially faculty across all regions perceive that they should help advisees inventory and assess their skills and abilities based on the objectives of their undergraduate programs.

5d. Essentially faculty across all regions perceive that they should help advisees select courses which will enhance their skills and abilities based on the objectives of their undergraduate programs.

5e. Essentially faculty across all regions perceive that they should design learning opportunities in courses in the major which would help students develop the skills and abilities relating to the objectives of their undergraduate programs.

5f. Essentially faculty across all regions perceive that they should design learning opportunities in courses in the major which would help students develop:

a. critical thinking skills (problem-solving),
b. communication skills,
c. computer skills,
d. values regarding major agricultural, national and international issues,
e. interpersonal skills, and
f. leadership skills.

5g. Essentially faculty across all regions perceive that they should provide extra-curricular opportunities for students to develop needed skills and abilities, especially leadership and interpersonal skills.

6. Essentially faculty across all regions are aware of efforts on the part of their college and/or department to assess undergraduate degree program outcomes, i.e., the attainment of basic college and/or department objectives during the preceding five years?

Communication Channels:

7. Essentially faculty across all regions are aware of the existence of course and curricular committees in their:

a. college, and
b. department.

8. Essentially faculty across all regions rate the effectiveness of communication channels used for educational change as either "Excellent" or "Good" in their:

a. college, and
b. department.

Attention to Curricular Change:

9. Essentially faculty across all regions rate the attention of the college and department faculties to curricular change as either "Excellent" or "Good" in their:

a. college, and
b. department.

10. Essentially faculty across all regions perceive that their university, college and/or department are sponsoring faculty development activities designed to improve their advising, counseling, teaching and/or curriculum building skills.

Faculty Development:

11. Essentially faculty across all regions perceive that the efforts of their university, college and/or department in sponsoring faculty development activities designed to improve advising, counseling, teaching and/or curriculum building skills are sufficient to meet their educational needs.

Faculty Evaluation of Undergraduate Objectives:

12. Essentially faculty across all regions agree that the seven undergraduate educational objectives are essential to a well-rounded education.

13. Essentially faculty across all regions agree that students in the majors in their department generally attain minimum job or graduate school entry-level skill in each of the seven undergraduate educational objectives by the time they graduate.

14. Essentially faculty across all regions agree that they possess the ability to teach students' attainment of the seven undergraduate educational objectives.

15. Essentially faculty across all regions agree faculty in their department possess the collective ability to teach students' attainment of the seven undergraduate educational objectives.

Faculty Background Information

A total of 941 faculty returned useable survey instruments. This represented a 57 percent rate of return. Among the 941 faculty respondents were 829 (88%) from institutions affiliated with RICOP and 112 (12%) with

AASCARR. Among the 829 RICOP faculty were 46 (6%) who were employed at 1890 land grant universities.

Slightly over half of the respondents, 52 percent, held the rank of professor. The others were associate professors and assistant professors, 26 and 22 percent, respectively. Because department heads were asked to complete a survey instrument, faculty were not distributed evenly among the three ranks. Most department heads held the rank of professor, thus, the number of professors in the sample is almost double the other two ranks.

More than three-fourths of all faculty, 76 percent, were tenured. Twenty-two percent of the total were in tenure track positions, and only two percent were in non-tenured track positions. The vast majority of faculty, 87 perecnt, were employed on a 11- or 12-month basis. Thirteen percent of the faculty were employed on a nine- or a 10-month basis.

Essentially all faculty, 96 percent, held doctoral degrees. Four percent held the masters degree as their highest degree, and less than one percent held only the baccalaureate degree. Ninety-nine percent of all faculty said that the doctorate was the terminal degree required in their departments Only one percent identified the masters degree as the terminal degree.

Fifty percent of the respondents had farm or ranch backgrounds. Another 17 percent had rural non-farm backgrounds. Twenty-two and twelve percent, respectively, were from suburban and urban areas.

Results and Discussion: Mission and Objectives

Results

Research Question 1. Do faculty perceive that their college and department have written statements of undergraduate educational mission and objectives?

Hypothesis 1. Essentially faculty across all regions are aware of the existence, at their institutions, of written statements of:

a. college mission,
b. college objectives,
c. department mission, and
d. department objectives.

All of the four sub-parts of this hypothesis were rejected.

The perceptions of faculty with regard to all survey questions involving mission and objectives are reported in Table 1.

Sixty-nine percent of the faculty reported that they were aware of a written college statement of mission. Seven percent said they were not. Twenty-four percent said they didn't know if a statement existed. Sixty-one percent said they were aware that their college had a written statement of objectives, nine percent said they weren't, and 30 percent didn't know if one existed.

Regional responses varied significantly in one case. Fewer faculty in the Central Region reported that they were aware of college statements of mission and objectives than was the case in other regions.

Seventy percent of the faculty respondents said they were and 18 percent said they were not aware of a department statement of mission. Twelve percent said they didn't know if a statement existed. Sixty-six percent said their department had a written statement of objectives, 20 percent said it did not, and 14 percent said they didn't know. Distribution of faculty responses among the regions did nor vary significantly.

While the vast majority of faculty (approximately two out of three) were aware of the existence of written statements of college and department undergraduate educational mission and objectives at their institutions, a significant number were not. About a third were unaware of the existence of such statements or indicated that they had no knowledge of their existence.

Research Question 2. Do faculty perceive that their department colleagues have a working knowledge of the college and department statements of undergraduate educational mission and objectives?

Hypothesis 2. Essentially faculty across all regions perceive that their faculty colleagues have a working knowledge of written statements of:

a. mission in the college,
b. objectives in the college,
c. mission in the department, and
d. objectives in the department?

All of the four sub-parts of this hypotheses were rejected.

Faculty responses to research question 2 are summarized in Table 1. Forty-six percent of the respondents reported that their department colleagues had a working knowledge of the college statement of mission; twenty-seven percent said they did not; and twenty-seven percent said they didn't know. Forty percent indicated that the department colleagues had a working knowledge of the college statement of objectives, 29 percent said they didn't, and 31 percent said they didn't know.

Sixty-nine percent of the respondents said that their department colleagues had a working knowledge of the department statement of mission; 18 percent said they did not; and 13 percent said they didn't know. Sixty-four percent said that the department colleagues had a working knowledge of the department statement of objectives, 20 percent said they didn't, and 16 percent said they didn't know.

While most faculty perceived that their colleagues had a working knowledge of the college statements of undergraduate educational mission and objectives, almost a third said they did not, and about a fourth said they didn't know. Faculty were more knowledgeable of the department as opposed to the college statement of mission and objectives. Even so, almost a fifth perceived that faculty in their department did not have a working knowledge of these statements and another group almost as large said they didn't know.

There were significant variations in the distribution of responses of faculty when the data were analyzed by geographical region. A greater proportion of faculty in the Southern Region and fewer in the Central Region reported that faculty had a working knowledge of the college mission and objectives. The central point should not be missed in examining the regional variations in responses. A significant number of faculty in all regions reported that their colleagues did not have a working knowledge of either the college or the department missions and objectives.

Research Question 3. Can faculty describe, from memory, the undergraduate educational mission and list the undergraduate educational objectives of their college and department?

Table 1. Summary of Faculty Responses Regarding Mission and Objectives.

Questions Asked of Faculty	No.	"Yes[1]" Responses Rounded to Nearest Whole Percent				
		Total	NE	Central	South	West
1. College has mission?	**928**	**69**	72	62	71	73
2. College has objectives?	**901**	**61**	60	55	65	59
3. Department has mission?	**908**	**70**	69	68	70	73
4. Department has objectives?	**891**	**66**	61	63	70	67
5. Faculty have working knowledge of college mission?	**748**	**46**[a]	48	37	52	46
6. Faculty have working knowledge of college objectives?	**716**	**40**	39	33	46	40
7. Faculty have working knowledge of department mission?	**710**	**69**	65	67	68	75
8. Faculty have working knowledge of department objectives?	**695**	**64**	59	61	65	70
9. Faculty can cite college mission from memory?	**751**	**50**[a]	51	45	56	45
10. Faculty can list college objectives from memory?	**727**	**44**[a]	48	37	49	40
11. Faculty can cite department mission from memory?	**717**	**73**	69	72	74	77
12. Faculty can list department objectives from memory?	**703**	**70**	63	66	73	73
13. College faculty bear primary responsibility for specifying undergraduate objectives?	**916**	**91**	90	94	91	89
14. Department faculty bear primary responsibility for specifying undergraduate objectives?	**922**	**97**	97	97	96	97
15. College faculty bear primary responsibility for monitoring students' attainment of objs.?	**917**	**89**	85	89	91	87
16. Dept. faculty bear primary responsibility for monitoring students' attainment of objs.?	**923**	**97**	97	95	97	97

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[1] **Note:** 10 percent or more "No" responses were considered significant.

[a] Significant variation in the distribution of responses of faculty among the regions at the .05 level by Chi Square analysis and Cramer's V.

Hypothesis 3a. Essentially faculty across all regions can, from memory, describe the undergraduate educational mission of their:

a. college, and
b. department.

Both sub-parts of this hypothesis were rejected.

Hypothesis 3b. Essentially faculty across all regions can list the undergraduate educational objectives of their:

a. college, and
d. department.

Both sub-parts of this hypothesis were rejected.

Responses of faculty to the research question 3 are reported in Table 1. Half of the faculty answered "Yes" and half answered "No" when asked if they could describe from memory the college mission statement. Forty-four percent of the faculty answered "Yes" and 56 percent answered "No" when asked if they could list the college objectives.

Seventy-three percent of the faculty answered "Yes" and 27 percent answered "No" when asked if they could describe the department statement of mission from memory. Seventy percent of the faculty answered "Yes" and 30 percent answered "No" when asked if they could list the department objectives.

A significant number of faculty said that they could not cite from memory either the college or the department statements of mission and objectives. It appears faculty became less sure of the mission and objectives when asked if they could cite them from memory. This suggests that there may have been even fewer who could actually have made the citations if asked to do so. Although considerably more faculty felt that they could describe the department statements of mission and objectives, between a quarter and a third indicated that they couldn't.

Significant variations were found in the distribution of the responses of faculty among regions. More faculty in the Northeast and Southern Regions and fewer in the Central and Western Regions reported they could cite the college statement of mission and objectives from memory. However, the more important point is that a significant number of all faculty felt they could not cite either the college or the department statements of mission and objectives from memory.

Research Question 4. Do faculty perceive the need for specifying the educational mission and objectives of the college and department?

Hypothesis 4a. Essentially faculty across all regions agree that college faculty bear the primary responsibility for specifying the college undergraduate educational objectives.

Hypothesis 4a was not rejected.

Hypothesis 4b. Essentially faculty across all regions agree that department faculty bear the primary responsibility for specifying the department undergraduate educational objectives.

Hypothesis 4b was not rejected.

Responses of faculty to research question 4 are reported in Table 1. Ninety-one percent answered "Yes" and nine percent answered "No" when asked if college faculty bore the primary responsibility for specifying college undergraduate objectives. Ninety-seven percent answered "Yes" and three percent answered "No" when asked if the department faculty bore responsibility for specifying department undergraduate objectives. No variations were found in the distribution of the responses of faculty by region.

The vast majority of faculty agreed that it was the responsibility of the college faculty as well as the department faculty to specify the undergraduate educational objectives of the college and department, respectively. The fact that as many as nine percent disagreed in the case of college objectives should still be a matter of concern to administrators as well as faculty.

Discussion

The need for statements of educational mission and objectives has been well established among educators. The need was reaffirmed by faculty in the study. Such statements are essential to the design of curricula, the development of courses and, most importantly, the achievement of purposeful program outcomes.

At the time the study was conducted, there were significant numbers of faculty in colleges of agriculture throughout the U.S. who were out of touch with the missions and objectives of their undergraduate programs at both the college and department levels. This conclusion is supported by the fact that a significant number of faculty did not have a working knowledge of either the college or the department statements of undergraduate educational mission and objectives. Even fewer reported that they could cite these statements from memory.

Left open is the larger question of whether or not the colleges and departments actually had statements of mission and objectives. The study did not attempt to verify this fact. In any case, it is apparent that many colleges and departments have failed to establish functional education mission orientations among a significant number of their faculty. This should be a matter of great concern not only to the institutions providing the programs of studies but also to state and national officials whose responsibilities include the evaluation of higher education programs and the establishment of program priorities and goals.

Results and Discussion: Student Outcomes

Results

Research Question 5. What do faculty perceive their role to be in monitoring students' attainment of undergraduate educational objectives?

Hypothesis 5a. Essentially faculty across all regions agree that college faculty bear the primary responsibility for monitoring students' attainment of college undergraduate educational objectives

This hypothesis was not rejected.

Responses of faculty research question 5 are reported in Table 1.

Eighty-nine percent answered "Yes" to this question. Eleven percent answered "No." Distribution of responses of faculty responses among the regions did not vary significantly.

Most college faculty agree that they have a responsibility for monitoring the attainment of the college undergraduate educational objectives. Nonetheless, a significant number do not feel that it is their responsibility.

Hypothesis 5b. Essentially faculty across all regions agree that faculty in the department bear the primary responsibility for monitoring students' attainment of department undergraduate educational objectives.

This hypothesis was not rejected.

Ninety-seven percent of the faculty answered "Yes" to the question of their responsibility for monitoring students' attainment of the undergraduate objectives. Only three percent answered "No." Distribution of faculty responses among the regions did not vary significantly.

Overwhelmingly, faculty agreed that it was their responsibility to monitor students' attainment of the department undergraduate educational objectives.

Hypothesis 5c. Essentially faculty across all regions perceive that they should help advisees assess their abilities based on the undergraduate educational objectives.

This hypothesis was rejected.

Fully two-thirds of the faculty surveyed felt some responsibility for assessing the abilities of students on an objective by objective basis, Table 2. About a third did not. Distribution of faculty responses did not vary significantly among the regions.

While most faculty (68%) agreed that they should help advisees assess their abilities on an objective by objective basis, a significant number disagreed.

Hypothesis 5d. Essentially faculty across all regions perceive that they should help advisees select courses that will enhance their achievement of the skills and abilities related to the objectives of their undergraduate programs.

This hypothesis was not rejected.

Ninety-five percent of the faculty respondents agreed that they should help students select courses as a means of achieving the objectives of the undergraduate program, Table 2. Only five percent disagreed. Distribution of faculty responses did not vary significantly among the regions.

Table 2. Summary of Faculty Responses to Ways of Monitoring Students' Attainment of the Seven Undergraduate Educational Objectives.

Ways of Monitoring Students' Attainment of Objectives	Number	Rounded Percent "Yes[1]" Responses				
		Total	NE	Central	South	West
1. Inventory and assess skills and abilities	**893**	**68**	66	68	70	65
2. Help advisees/students to select courses	**919**	**95**	94	95	96	95
3. Design learning opportunities in the major	**911**	**96**	95	96	96	98
4. Reinforce the development of these skills and abilities in department courses:						
a. Critical thinking	**919**	**99**	99	98	99	100
b. Communications skills	**916**	**98**	97	99	98	98
c. Computer skills	**900**	**90**[a]	86	89	94	89
d. Values regarding major agricultural issues	**883**	**82**[a]	76	84	86	79
e. Interpersonal skills	**893**	**79**[a]	77	84	81	71
f. Leadership skills	**882**	**80**	78	84	82	75
5. Provide extra-curricular opportunities for students to develop needed skills and abilities, especially leadership and interpersonal skills	**908**	**89**[a]	88	92	91	84

[1] **Note:** 10 percent or more "No" responses were considered significant.

[a] Significant variation in the distribution of responses of faculty among the regions at the .05 level by Chi Square analysis and Cramer's V.

Faculty were in almost total agreement with regard to their professional responsibility for helping students select courses as a means of reaching the undergraduate educational objectives.

Hypothesis 5e. Essentially faculty across all regions perceive that they should design learning opportunities in courses in the major which would help students develop the skills and abilities leading to the objectives of their undergraduate programs.

This hypothesis was not rejected.

Ninety-six percent of the faculty responded "Yes" and four percent answered "No" to this technique of helping students reach the specified undergraduate objectives, Table 2. Distribution of faculty responses did not vary significantly among the regions.

There was very close agreement among faculty with regard to the technique of assisting students in achieving the objectives of the undergraduate program by designing learning opportunities in courses in the major.

Hypothesis 5f. Essentially faculty across all regions agree that they should reinforce the development of the following skills among their students by designing learning opportunities in courses in the major:

1. critical thinking skills (problem-solving),
2. communication skills,
3. computer skills,
4. values regarding major agricultural, national and international issues,
5. interpersonal skills, and
6. leadership skills.

Hypotheses 5f 1 and 2 were not rejected while 5f 3, 4, 5 and 6 were rejected.

Faculty were in almost total agreement, 99 and 98 percent, respectively, with regard to the technique of reinforcing the teaching of critical thinking and communication skills in courses in the major, Table 2. Distribution of faculty responses among the regions did not vary significantly.

On the other hand, faculty opinion was polarized with regard to the teaching of the following skills:

1. Computer skills, 90 percent;
2. Values development, 82 percent;
3. Interpersonal skills, 79 percent; and
4. Leadership skills, 80 percent.

Distribution of faculty responses among the regions varied significantly. More faculty in the Southern Region and fewer in the Northeast Region agreed with the technique of reinforcing the teaching of computer skills and development of values in courses in the major.

Although a majority of the respondents agreed that faculty should reinforce the teaching of critical thinking skills (problem-solving), communication skills, computer skills, values development, interpersonal skills, and leadership skills, a significant number disagreed with regard to computer skills, values, interpersonal skills and leadership skills.

Hypothesis 5g. Essentially faculty across all regions perceive that they should provide extra-curricular opportunities for students to develop needed skills and abilities, especially leadership and interpersonal skills.

This hypothesis was rejected.

Eighty-nine percent of the respondents agreed that it was their responsibility to provide extra-curricular opportunities for students to develop needed skills and abilities, Table 2. On the other hand, a significant number of faculty, 11 percent, disagreed. Distribution of faculty responses among the regions varied significantly. More faculty in the Central Region and fewer in the Western Region felt they should provide extra-curricular opportunities.

Faculty were polarized with regard to their responsibility for providing extra-curricular opportunities for students to develop needed skills and abilities. The vast majority agreed that it was their responsibility but a significant number disagreed. It should be pointed out that faculty at most baccalaureate degree institutions perceive this as being outside their regular duties. Thus, the activities may be perceived by faculty as important on the one hand but outside their responsibilities on the other.

Research Question 6. Do faculty perceive that efforts are being made at their institutions to determine the extent to which the undergraduate educational objectives are being achieved by graduates?

Hypothesis 6. Essentially faculty across all regions are aware of efforts on the part of their college and department to assess undergraduate degree program outcomes, i.e., the attainment of basic college and/or department objectives during the preceding five years.

This hypothesis was rejected.

When asked the question "Other than job placement, have assessments been made of undergraduate degree program outcomes in your college or department in the last five years?," a significant number of faculty either answered "No," 37 percent, or said they "Didn't Know," 28 percent. Only 35 percent answered "Yes", Table 3.

Distribution of faculty responses among the regions varied significantly. More faculty in the Central and Western Regions and fewer in the Northeast and Southern Regions perceived that their institutions had assessed the attainment of basic college undergraduate educational objectives during the preceding five year period.

Comprehensive assessments of undergraduate educational program outcomes in agriculture are not being conducted at many institutions. If they are, most faculty are unaware of the results.

Discussion

The premises upon which education programs are built include not only the design and continuous validation of statements of mission and objectives but also the monitoring and evaluation of the achievement of the mission and objectives. The latter includes product as well as process evaluations. Since education programs are the responsibility of faculty in both the college and the department in which they are located, it becomes the responsibility of the teaching faculty at both levels to carry out these functions.

For the most part, faculty recognized that both college and department faculty shoulder primary responsibility for monitoring the attainment of college and department undergraduate educational objectives.

Table 3. Responses of Faculty to Questions about Program Outcomes, Course and Curricula Committees, and Faculty Development Activities.

Questions Asked Regarding Course and Curricula Committees and Faculty Development Activities	Number	Rounded "Yes[1]" Responses in Percent
1. Have graduates been asked during the past five years to assess their attainment of basic college and/or department objectives?		
National	**922**	**35**[a]
Northeast	149	26
Central	238	38
Southern	318	31
Western	217	42
2. Are there course and curricula committees in your college?		
National	**881**	**94**[a]
Northeast	143	96
Central	237	98
Southern	292	90
Western	209	95
3. Are there course and curricula committees in your department?		
National	**844**	**91**
Northeast	131	89
Central	219	91
Southern	292	91
Western	202	93
4. Does your institution sponsor faculty development activities?		
National	**935**	**88**[a]
Northeast	148	89
Central	242	94
Southern	327	84
Western	218	88
5. Are the faculty development activities sufficient to meet your needs?		
National	**821**	**63**[a]
Northeast	128	56
Central	223	70
Southern	279	60
Western	191	62

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[1] **Note:** 10 percent or more "No" responses were considered significant.

[a] Significant variation in the distribution of responses of faculty among the regions at the .05 level by Chi Square analysis and Cramer's V.

However, a significant number disagreed. They apparently felt that either college faculty did not have a role to play in this regard and/or that the responsibility for monitoring students' attainment of the undergraduate educational objectives was the responsibility of the student and/or other individuals. There is an obvious need for clarifying the educational role of college of agriculture faculty. If program outcomes are to be purposefully set and reached, faculty must have valid information, collected before and after graduation, regarding student achievement.

Almost a third of the faculty felt no responsibility for assessing the abilities of students on an objective by objective basis. This too suggests the need for some form of faculty role clarification. It could be that some faculty felt that the identification of undergraduate objectives was only for their use in planning curricula and courses and in teaching but not for the use of their students in learning. Most students may not be qualified to accurately assess their own skills and abilities early in their programs of study. If faculty do not help them assess their skills and abilities as well as evaluate their progress toward and their achievement of the objectives, neither the faculty nor the students can effectively and efficiently plan for and reach the educational objectives.

A surprising result was the fact that some faculty did not clearly perceive that their role included the activity of selecting courses. It is generally accepted as a responsibility of teaching faculty. Perhaps it is again an expression of the discipline orientation and independence of faculty to which Schuh (3:1984) referred.

There was close agreement among faculty with regard to the technique of assisting students in achieving the objectives of the undergraduate program by designing learning opportunities in courses in the major. Also, faculty were in almost total agreement with regard to reinforcing the teaching of critical thinking and communication skills in courses in the major. On the other hand, faculty were polarized to some extent with regard to the teaching of computer skills, values development, interpersonal skills, and leadership skills. Although the vast majority agreed that faculty should reinforce these skills, a significant number did not.

In the case of computer skills and values development, it is postulated that many faculty did not feel comfortable in making these judgments in 1987 when the survey was conducted. Many lacked microcomputer skills. Others probably did not comprehend the vital long-range implications of class discussions of the value judgments involved in alternative solutions to a technological problem. With regard to values development, one faculty member suggested that it was not his responsibility to teach "religion." Thus, it is quite possible that other faculty did not fully understand the meaning and the implications of the choices they made in responding to this part of the survey.

Most faculty were in agreement with regard to the technique of providing extra-curricular learning opportunities for students in an effort to help them reach their undergraduate educational objectives. Even so, a significant number disagreed. Once again, an explanation for this disagreement could be that faculty perceive extra-curricular activities as occurring outside the regular academic time frame, and, thus, infringing upon their personal time. This, of course, does not have to be the case. Many extra-curricular activities can be scheduled and carried out during the regular academic time frame.

Many faculty either were not aware of efforts to assess the outcomes of undergraduate education in their college and department or they didn't know whether or not such efforts had been made. There was evidence suggesting that undergraduate program outcomes had not been evaluated on a systematic comprehensive basis. There were also some indications in individual survey responses that evaluations consisted largely of feed-back from students via graduating seniors in the departments at the end of their degree programs without specific reference to the achievement of the educational mission and objectives.

As noted at the beginning of this discussion, program evaluation is both fundamental and essential to program improvement and program success. The results of the study clearly pointed out the need for periodic comprehensive assessments of the outcomes of undergraduate education programs in agriculture colleges. Furthermore, faculty need to be aware of and use the results of these assessments in their advising and instructional activities.

Results and Discussion: College and Department Communication Channels

Results

Research Question 7. Do faculty perceive the existence of course and curricula committees in their college and department?

Hypothesis 7. Essentially faculty across all regions are aware of the existence of course and curricula committees in their:

a. college, and
b. department.

Neither of the sub-parts of this hypothesis was rejected.

Ninety-four and 91 percent of the faculty, respectively, reported that there were course and curricula committees in their college and department, Table 3. The fact that nine percent responded "No" at the department level might be explained by the fact that some of the smaller colleges of agriculture function administratively at the college level. Distribution of faculty responses among the regions varied significantly. More faculty in the Central Region and fewer in the Southern Region reported the existence and use of course and curricula committees.

The vast majority of institutions surveyed utilized course and curricula committees in both the college and department.

Research Question 8. To what degree do faculty perceive that college and department communication channels are effective in bringing about curricular changes?

Hypothesis 8. Essentially faculty across all regions rate the effectiveness of communication channels used for curricular change as either "Excellent," or "Good" in their:

a. college, and
b. department.

Both of the sub-parts of this hypothesis were rejected.

Significant numbers of college of agriculture faculty gave less than satisfactory ratings, i.e., either "Fair" or "Poor" ratings, to the effectiveness of communication channels in their college and department, Table 4. There was no significant association between region and response.

Table 4. Faculty Ratings of the Effectiveness of College and Department Communication Channels.

Questions Asked	Number	Responses in Rounded Percent				
		Excellent	Good	Fair[1]	Poor[1]	Don't Know
1. Effectiveness of the communication channels in the college?						
National	**914**	**7**	**41**	**28**	**14**	**10**
Northeast	142	3	41	25	17	14
Central	237	10	39	32	11	8
Southern	320	7	42	28	15	8
Western	215	6	38	27	16	13
2. Effectiveness of the communication channels in the department?						
National	**911**	**23**	**48**	**17**	**7**	**5**
Northeast	141	18	48	18	10	6
Central	238	23	46	21	5	5
Southern	319	25	47	16	8	4
Western	213	24	54	12	5	5
3. Rating of the college faculty in attending to curricular change?						
National	**934**	**11**	**46**	**26**	**9**	**8**
Northeast	149	6	51	24	7	12
Central	241	14	43	29	7	7
Southern	323	12	47	24	10	7
Western	221	11	42	27	10	10
4. Rating of the department faculty in attending to curricular change?						
National	**941**	**25**	**51**	**18**	**5**	**1**
Northeast	149	25	52	14	8	1
Central	243	21	50	25	3	1
Southern	328	27	51	14	7	1
Western	221	27	50	18	4	1

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[1] **Note:** 10 percent or more "Fair" and "Poor" responses were considered significant.

Over half of the faculty rated the effectiveness of communication channels in the college as "Fair" (28 percent), "Poor" (14 percent), or "Don't Know" (10 percent), [Table 4]. Less than half rated the channels "Excellent" (7 percent) or "Good" (41 percent). Over half, 71 percent, rated the effectiveness of the department communication channels used for educational change as being Excellent" or "Good." Twenty-nine percent rated them as being "Fair," Poor," or "Don't Know."

Discussion

It is apparent that most colleges and departments utilize course and curricula committees at the college and department levels to effect curricular change. The results suggest that institutions utilized faculty at both levels in planning, processing, monitoring and/or evaluating courses and curricula. On the other hand, many faculty gave less than satisfactory ratings to the effectiveness of college and department communication channels. Faculty rated communication channels in the department somewhat higher than in the college.

If these responses are a true indication of the current effectiveness of communication channels in most colleges and departments, the need for improvement is rather obvious. It would appear that communications about education planning and evaluation among and between faculty and administrators is a matter worthy of special attention.

Results and Discussion: Faculty Effectiveness in Curricular Change

Results

Research Question 9. To what degree do faculty perceive that the college and department faculty are effective in attending to curricular change?

Hypothesis 9. Essentially faculty across all regions rate the attention to curricular change as either "Excellent" or "Good" in their:

a. college, and
b. department.

Both of the sub-parts of this hypothesis were rejected.

Responses of faculty to the question "What rating would you give your college in attending to curricular change?" were: "Excellent," 11 percent;

"Good," 46 percent; "Fair," 26 percent; "Poor," nine percent; and "Don't Know," eight percent [Table 4]. Distribution of faculty responses among the regions did not vary significantly.

Responses of faculty to the question "What rating would you give your department in attending to curricular change?" were: "Excellent," 25 percent; "Good," 51 percent; "Fair," 18 percent; "Poor," five percent; and "Don't Know," one percent [Table 4]. Distribution of faculty responses among the regions did not vary significantly.

While most faculty gave their college and department excellent or good ratings in attending to curricular change, a significant number gave them less than satisfactory ratings.

Discussion

There were many faculty who either were unfamiliar with or unhappy with the attention given to curricular change in their college and department. This result emphasizes and reinforces the need for improving communication channels among and between college and department faculty and among and between faculty and administrators. Also, it suggests the need for clarifying the educational roles and responsibilities of faculty and administrators.

Results and Discussion: Institutional Faculty Development Activities

Results

Research Question 10. Do faculty perceive that their university, college, and/or department are attending to faculty development in an effort to improve advising, counseling, teaching, and/or curriculum building skills?

Hypothesis 10a. Essentially faculty across all regions perceive that their institution is providing faculty development activities designed to improve advising, counseling, teaching, and/or curriculum building skills.

Hypothesis 10b. Essentially faculty across all regions perceive that faculty development activities at their institutions are sufficient to meet their educational needs.

Both hypotheses were rejected.

Eighty-eight percent of the faculty reported their institutions had sponsored faculty development activities [Table 3]. A significant number, twelve percent, reported they had not. Sixty-three percent said the sponsored activities met their educational needs. A significant number, 37 percent, said the activities did not meet their educational needs. Distribution of faculty responses among the regions varied significantly. More faculty in the Central Region and fewer in the Southern Region reported faculty development activities. More faculty in the Central region and fewer in the Northeast Region felt faculty development activities at their institutions met their needs.

While most faculty reported their institutions had conducted faculty development activities, a significant number reported that they had not. Of more importance is the fact that, among those institutions offering programs, a significant number of faculty perceive the activities were not meeting their educational needs.

Discussion

In some respects, the results regarding faculty development activities were not surprising. Even though 12 percent of the faculty were either unaware of faculty development activities or didn't know about them, it had been speculated before the study was conducted that many institutions would not be involved in such activities and, thus, faculty would probably not be aware of them. Nonetheless, the need for faculty development is suggested in the findings. There seems to be little doubt that there is a need to give greater attention to faculty development in an effort to reach faculty needs and ultimately the needs of their students. This conclusion goes hand-in-hand with the earlier conclusion that faculty roles and responsibilities need to be clarified.

Results and Discussion: Undergraduate Educational Objectives

Results

Research Question 11. Do faculty agree on the importance of a well-rounded education as reflected in the seven undergraduate educational objectives?

Hypothesis 11. Essentially faculty across all regions agree on the importance of the following objectives for a well-rounded undergraduate education:

1. Professional, technical, and agricultural competence in:
    a. career and job orientation,
    b. knowledge of specifics,
    c. comprehension and application;
2. Critical thinking (analysis, synthesis and evaluation),
3. Communication skills including:
    a. writing,
    b. speaking;
4. Microcomputer and computer competence including:
    a. accessing the computer,
    b. word processing,
    c. spread sheets,
    d. data base,
    e. programming;
5. Values, including awareness of major agricultural, national, and international issues, and the development of values;
6. Interpersonal skills;
7. Leadership skills.

Hypotheses 1a, 4a, 4b, 4c, 4d, 4e, 5, and 7 were rejected. Hypotheses 1b, 1c, 2, 3a , 3b and 6 were not rejected.

Research Question 12. Do faculty perceive that students enrolled in majors in their department attain minimum job or graduate school entry-level competence by the time they graduate?

Hypothesis 12. Essentially faculty across all regions perceive that graduates have attained minimum job or graduate school entry-level skill by the time they graduate.

This hypothesis was rejected.

Faculty perceptions regarding the importance and attainment of objectives by students in their departments are summarized in Tables 5, 6 and 7.

Table 5. Faculty Perceptions of the Importance and Attainment of The Seven Undergraduate Educational Objectives for Students in Their Department.

Undergraduate Educational Objective	Rounded "Yes[1]" Responses			
	Importance		**Attainment**	
	Number	Percent	Number	Percent
1. Professional, technical, and agricultural competence in:				
a. career and job orientation	893	84	869	86
b. knowledge of specifics	904	97	870	95
c. comprehension and application	887	91	856	83
2. Critical thinking (analysis, synthesis and evaluation)	894	98	848	70
3. Communication skills including:				
a. writing	903	100	851	67
b. speaking	898	98	845	73
4. Microcomputer and computer competence:				
a. accessing the computer	890	88	838	75
b. word processing	887	64	823	48
c. spread sheets	875	60	813	42
d. data base	870	57	810	34
e. programming	880	29	818	29
5. Values, including awareness of major agricultural, national,and international issues and the development of values	884	87	826	52
6. Interpersonal skills	884	92	802	76
7. Leadership skills	874	80	795	55

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[1] **Note:** 10 percent or more "No" responses were considered significant.

Table 6. Faculty Perceptions of the Importance of the Seven Undergraduate Educational Objectives Reported by Region.

Undergraduate Educational Objective	Importance of Undergraduate Objectives Rounded Percent "Yes[1]" Responses				
	National	Northeast	Central	South	West
1. Professional, technical, and agricultural competence in:					
a. career and job orientation.	**84**[a]	84	87	88	75
b. knowledge of specifics.......	**97**	98	97	97	95
c. comprehension and application...............................	**91**	89	93	92	89
2. Critical thinking (analysis, synthesis and evaluation).......	**98**	99	98	97	99
3. Communication skills including:					
a. writing.......................................	**100**	100	100	99	100
b. speaking....................................	**98**	99	98	97	99
4. Microcomputer and computer competence:					
a. accessing the computer......	**88**	88	89	89	87
b. word processing.....................	**64**	66	65	64	63
c. spread sheets..........................	**60**	55	65	61	56
d. data base..................................	**57**	50[a]	58	60	55
e. programming...........................	**29**	27	28	32	26
5. Values, including awareness of major agricultural, national,and international issues and the development of values..	**87**	83	91	87	82
6. Interpersonal skills...................	**92**[a]	94	95	93	87
7. Leadership skills.........................	**80**[a]	74	87	84	70

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[1] **Note:** 10 percent or more "No" responses were considered significant.

[a] Significant variation in the distribution of responses among faculty in the regions at the .05 level by Chi Square analysis and Cramer's V.

Table 7. Faculty Perceptions of the Attainment of the Seven Undergraduate Educational Objectives by Graduating Senior Students Reported by Region.

Undergraduate Educational Objective	Attainment of Undergraduate Objectives Rounded Percent "Yes[1]" Responses				
	National	Northeast	Central	South	West
1. Professional, technical, and agricultural competence in:					
a. career and job orientation.	**86**[a]	90	81	88	88
b. knowledge of specifics.......	**95**	97	95	93	95
c. comprehension and application..............................	**83**[a]	83	88	80	80
2. Critical thinking (analysis, synthesis and evaluation).......	**70**[a]	67	67	68	76
3. Communication skills including:					
a. writing......................................	**67**[a]	72	61	68	70
b. speaking....................................	**73**[a]	77	72	76	66
4. Microcomputer and computer competence:					
a. accessing the computer......	**75**	76	79	71	77
b. word processing.....................	**48**[a]	54	51	41	52
c. spread sheets..........................	**42**[a]	47	48	39	37
d. data base..................................	**34**	35	35	33	34
e. programming...........................	**29**	34	27	30	25
5. Values, including awareness of major agricultural, national,and international issues and the development of values.......................................	**52**	44	49	55	56
6. Interpersonal skills..................	**76**	75	75	77	74
7. Leadership skills.........................	**55**	56	55	58	50

[1] **Note:** 10 percent or more "No" responses were considered significant.

[a] Significant variation in the distribution of responses among faculty in the regions at .05 level by Chi Square analysis and Cramer's V.

Career-Job Orientation

Eighty-four percent of the faculty perceived that career and job orientation was a worthwhile objective. A significant number, 16 percent, disagreed. Eighty-six percent felt that students had attained minimum job and graduate school entry-level skill by the time they graduated. A significant number, 14 percent, disagreed.

There were significant variations in the regional distribution of faculty responses. More faculty in the Central and Southern and fewer in the Western region perceived that career and job orientation was an important undergraduate competency. More faculty in the Northeast and fewer in the Central region perceived that students were attaining minimum job or graduate school entry-level competence by the time they graduated.

Knowledge of Specifics

Ninety-seven percent of the faculty perceived that knowledge of specifics was an important objective, and 94 percent felt students were attaining minimum job or graduate school entry-level competence. Faculty responses among the regions did not vary significantly.

Comprehension and Application

Ninety-one percent of the faculty perceived that the comprehension and application of agricultural technology was an important objective, and 84 percent felt students were attaining the objective. On the other hand, a significant number of faculty, 16 percent, felt that students were not attaining this objective by the time they graduated.

Regional faculty responses did not vary significantly with regard to the importance of this objective but there were differences with regard to perception of attainment. More faculty in the Central Region and fewer in the Southern and Western Regions felt that graduates were attaining minimum job or graduate school entry-level competence in the comprehension and application of agricultural technology.

Critical Thinking

Ninety-eight percent of the faculty perceived that the analysis, synthesis and evaluation of scientific data was an important undergraduate educational objective but only 70 percent felt students were achieving minimum job or graduate school entry-level skill by the time they graduated. Distribution of faculty responses among the regions did not vary significantly.

Writing

One hundred percent of the faculty perceived writing to be an important objective but only 67 percent of the students were attaining the objective. There were no significant variations in the responses of faculty by region with regard to the importance of the objective. There were significant variations in the responses of faculty with regard to student attainment of minimum competence by the time they graduated. More faculty in the Northeast and Western Regions and fewer in the Central Region felt students were attaining minimum job or graduate school entry-level writing competence by the time they graduated.

Speaking

Ninety-eight percent of the faculty perceived speaking to be an important objective and 73 percent of the students were attaining the objective. Faculty perceptions did not vary significantly among the regions with regard to the importance of this objective. There were regional variations in faculty responses with regard to the attainment of the objective. More faculty in the Northeast and Southern Regions and fewer in the Western Region perceived that students were attaining minimum job or graduate school entry-level speaking competence by the time they graduated.

Computer and Microcomputer Skills

Eighty-eight percent of the faculty perceived accessing the computer to be an important undergraduate educational objective and 75 percent of their students were attaining minimum job and graduate school entry-level skill by the time they graduated. Only 64 percent of the faculty perceived word processing to be an important objective and 48 percent felt their students were attaining the objective. Sixty percent perceived spread sheets to be important and 42 percent thought students were achieving the objective. Fifty-seven percent perceived data bases to be an important objective and only 34 percent felt students were achieving the objective. Finally, 29 percent perceived programming to be an important objective and 29 percent thought their students were achieving the objective.

Distribution of faculty responses with regard to the attainment of the computer competencies among the regions varied significantly for word processing and spread sheets. Fewer faculty in the Southern Region and more faculty in the Central and Western Regions perceived that students were attaining minimum job or graduate school entry level word processing skill by graduation time. Similarly, fewer faculty in the Southern Region and more in the other three regions perceived that students were attaining minimum entry level skill with spread sheets by the time they graduated.

Values Development

Eighty-seven percent of the faculty perceived the development of values including an awareness of major agricultural, national, and international issues, to be an important objective but only 52 percent thought their students were achieving minimum job and graduate school entry-level skill by the time they graduated. There were no significant variations in the distribution of faculty responses among the regions.

Interpersonal and Leadership Skills

Ninety-two percent perceived interpersonal skills (personal and social maturity) to be an important objective and 76 percent of the students were attaining the objective. Eighty percent perceived the development of leadership skills as an important objective but only 55 percent of the students were attaining the objective. In both cases, there were significant regional variations in the distribution of faculty responses with regard to the importance of the competency. Fewer faculty in the Western Region and more in the Northeast and Central Regions cited the importance of interpersonal skills as an undergraduate objective. More faculty in the Southern Region and fewer in the other three regions cited the importance of leadership skills as an undergraduate objective.

Discussion

With one exception, most faculty agreed on the importance of the undergraduate educational objectives as outlined in the study. Only 29 percent felt computer programming was important. There were significant numbers of faculty who disagreed regarding the importance of career and job orientation, computer skills, development of values and leadership skills. This polarization of faculty opinion needs to be addressed at both the national and institutional levels to achieve greater faculty consensus with regard to undergraduate educational objectives.

Of far greater concern is the fact that significant numbers of faculty perceived, with the exception of knowledge of specifics, that their students were not attaining the undergraduate educational objectives. This contrasts with the perceptions of students reported in Part II of the study. The students had generally higher perceptions of their attainment of the same objectives. In point of fact, it is entirely possible that neither the faculty nor the students really knew the extent of student achievement in the various objectives since there was little evidence to suggest that comprehensive assessments of student achievement had been conducted during the previous five year period.

Results and Discussion: Faculty Perception of Teaching Ability.

Results

Research Question 14. Do faculty perceive that they possess the ability to teach the achievement of the seven undergraduate educational objectives?

Hypothesis 14. Essentially faculty across all regions agree that they possess the ability to teach the achievement of the seven undergraduate educational objectives.

This hypothesis was rejected for all objectives except the second, knowledge of specifics.

Research Question 15. Do faculty perceive that faculty in their departments possess the collective ability to teach the achievement of the seven undergraduate educational objectives?

Hypothesis 15. Essentially faculty across all regions agree that colleagues in their department possess the collective ability to teach the achievement of the seven undergraduate educational objectives.

This hypothesis was rejected for objectives: 3. communications skills, 4. computer skills, 5. values development, and 6. interpersonal skills.

Faculty "Ability to Teach" responses are summarized in Tables 8 and 9.

With the exception of knowledge of specifics and critical thinking, a significant number of faculty respondents did not feel that they possessed the ability to teach the objectives, i.e., 10 percent or more reported that they could not teach the objectives. Significant numbers also felt that their colleagues did not have the collective ability to teach communication skills, computer skills, values development, interpersonal skills and leadership skills.

There were significant variations in the distribution of faculty responses among the regions. More faculty in the Central Region and fewer in the Western Region perceived that they could teach career and job orientation. More faculty in the Southern Region and fewer in the Northeast and Western Regions perceived that they could teach interpersonal skills.

Table 8. Summary of Faculty Perceptions of their Ability to Teach the Seven Undergraduate Educational Objectives Reported by Region.

Undergraduate Educational Objectives	Number	Faculty Member's Teaching Ability Rounded Percent "Yes[1]" Responses				
		Total	NE	Central	South	West
1. Professional, technical, and agricultural competence in:						
a. career and job orientation	884	82[a]	80	86	84	77
b. knowledge of specifics	886	96	96	96	96	95
c. comprehension and application	877	88	90	92	88	84
2. Critical thinking (analysis, synthesis and evaluation)	874	94	93	97	94	92
3. Communication skills including:						
a. writing	867	78	77	80	79	75
b. speaking	866	73	68	71	77	72
4. Microcomputer and computer competence:						
a. accessing the computer	873	57	55	58	55	61
b. word processing	868	48	50	49	44	53
c. spread sheets	867	35	32	38	31	39
d. data base	863	32	27	30	33	36
e. programming	867	25	20	28	23	27
5. Values, including awareness of major agricultural, national,and international issues, and the development of values	855	69	58	73	74	63
6. Interpersonal skills	835	59[a]	50	61	67	52
7. Leadership skills	836	66[a]	55	70	73	59

[1] **Note:** 10 percent or more "No" responses were considered significant.

[a] Significant variation in the distribution of faculty responses among the regions at the .05 level by Chi Square and Cramer's V.

Table 9. Summary of Faculty Perceptions of the Department Faculty's Collective Ability to Teach the Undergraduate Educational Objectives, Reported by Region.

Undergraduate Educational Objectives	No.	Collective Teaching Ability of Dept. Faculty, Rounded % "Yes[1]" Responses				
		Total	NE	Central	South	West
1. Professional, technical, and agricultural competence in:						
a. career and job orientation..	896	92	95	90	91	93
b. knowledge of specifics........	893	97	97	96	97	98
c. comprehension and application..............................	884	93	94	92	94	90
2. Critical thinking (analysis, synthesis and evaluation)........	879	95	96	96	95	94
3. Communications skills including:						
a. writing..	874	84	79	84	85	84
b. speaking....................................	872	80	76	79	83	78
4. Microcomputer and computer competence:						
a. accessing the computer.......	876	83[a]	87	80	81	88
b. word processing......................	876	78[a]	81	76	75	83
c. spread sheets...........................	870	75[a]	79	71	71	83
d. data base....................................	868	74[a]	75	71	72	82
e. programming............................	867	62[a]	60	60	60	70
5. Values, including awareness of major agricultural, national,and international issues and the development of values..	869	82[a]	75	83	85	84
6. Interpersonal skills.....................	835	71[a]	65	73	76	66
7. Leadership skills..........................	838	76[a]	70	81	80	69

[1] **Note:** 10 percent or more "No" responses were considered significant.

[a] Significant variation in the distribution of faculty responses among the regions at the .05 level by Chi Square analysis and Cramer's V.

More faculty in the Northeast and Western Regions and fewer in the Central and Southern Regions felt that department faculty could collectively teach accessing the computer, word processing and spread sheets. More faculty in the Western Regions and fewer in the Central and Southern Regions felt that their department colleagues could collectively teach data bases. More faculty in the Western Regions and fewer in the other three regions felt that their department colleagues could collectively teach computer programing.

Discussion

It is particularly alarming that many faculty felt that they could not teach communication skills and values including awareness of major agricultural, national and international issues. Even when these objectives were viewed as the collective responsibility of all faculty in the department, many faculty felt their colleagues could not teach them effectively.

It is more understandable that many faculty felt that they could not teach the computer skills and perhaps even the interpersonal and leadership skills. The use of the microcomputer in the classroom was still very new to many instructors when the study was conducted. Interpersonal and leadership skills, as pointed out previously, are sometimes thought of as being outside the academic responsibilities of the faculty member. Yet, if a well-rounded undergraduate education is the ultimate outcome of baccalaureate degree programs in agriculture, faculty must not overlook the value and the potential of extending and improving learning opportunities through the use of extra-curricular activities.

Finally, there was a contradiction in the responses of faculty when 94 percent said they could teach critical thinking and only 31 percent said they could teach values development. Critical thinking involves value judgments. Although it is not the responsibility of faculty to teach or promote particular values, they do shoulder the responsibility for teaching students the processes of critical thinking including how to make and assess their own value judgments.

Conclusions and Recommendations

Conclusions

1. There is strong agreement among college of agriculture faculty with regard to the importance of essentially all seven of the undergraduate educational objectives included in the study.

2. Faculty agree it is their responsibility to specify both college and department statements of mission and objectives.

3. Many faculty lack a mission orientation. Significant numbers, one out of every three, are out of touch with their college and department statements of missions and objectives.

4. There is little evidence that comprehensive assessments of students' achievement of undergraduate educational objectives are being made either at the college or department levels.

5. Faculty perception of students' attainment of the seven objectives by the time they graduate, with the exception of knowledge of specifics, is less than satisfactory.

6. There is considerable disagreement among faculty with regard to the need for monitoring students' attainment of the college educational objectives. However, there is strong agreement for monitoring students' attainment of the department objectives.

7. There is considerable disagreement among faculty with regard to: (a) inventorying student attainment of skills and abilities on an objective by objective basis, (b) reinforcing in courses in the major of selected abilities such as computer skills, development of values, interpersonal and leadership skills, and (c) providing extra-curricular learning opportunities.

8. Faculty are not satisfied with the effectiveness of communication channels in bringing about educational change.

9. Many faculty give both college and department faculties less than satisfactory ratings in attending to curricular change.

10. A significant number of faculty do not perceive that their institutions are offering them faculty development activities designed to improve their advising, teaching, and/or curriculum building skills. Furthermore, among those institutions offering these activities, a significant number of faculty feel that the activities are not meeting their educational needs.

Recommendations

The results of this national assessment of undergraduate education in U.S. colleges of agriculture should be cause for considerable concern. While it is evident that students are meeting minimum standards in the achievement of educational objectives, their achievements do not warrant exceptional praise. In point of fact, it is apparent that colleges of agriculture have failed to lead undergraduate students to acquire full job or graduate school entry-level skill and they have also failed to generate a mission orientation among their faculty. Consequently, many faculty are out of touch with their college and departments statements of missions and objectives and many students are not receiving a well-rounded baccalaureate degree education.

There is little evidence to suggest that comprehensive assessments have been made of undergraduate program outcomes based on student attainment of established educational objectives. There are perceived deficiencies in the abilities of individual faculty members and among department faculty members collectively to teach the achievement of the educational objectives. Faculty apparently would like more and better faculty development opportunities.

The results of the study strongly suggest the need for corrective action at both the national and institutional level. Therefore, two recommendations are proposed.

1. It is recommended that the Resident Instruction Committee on Organization and Policy (RICOP), National Association of State Universities and Land Grant Colleges, (NASULGC) and the American Association of State Colleges of Agriculture and Renewable Resources, (AASCARR) provide the leadership for the development of: (1) a model statement of mission and undergraduate educational objectives and (2) suggested guidelines for the process and product evaluation and assessment of study programs. The mission and objectives used in this study could serve as a point of departure. The statements of mission and objectives as well as the guidelines and standards are essential prerequisites to other program development and improvement needs.

2. It is recommended that the Office of Science and Education Administration, USDA, seek authorizations and appropriations from the U.S. Congress for the purpose of establishing four strategically located regional Faculty Development Centers. The centers would provide educational opportunities for faculty (supported by in-kind institutional funds) from all agriculture disciplines for the purpose of addressing the important constraints to improved undergraduate program outcomes. A high priority of the centers would be to promote and encourage periodic and comprehensive assessments of the outcomes of baccalaureate degree agriculture programs in all regions of the U.S. Another high priority would be to assist in the generation of a higher degree of concensus among all faculty and administrators with regard to the mission and objectives of a well-rounded undergraduate education.

Still another high priority would be to provide short-term, intensive training programs whereby faculty could learn improved techniques for advising and teaching students in the attainment of educational objectives. Included would be ways and means of improving the learning opportunities for students. In particular, faculty would learn how to help students solve realistic life problems related to their areas of study in ways that would improve their communication and critical thinking skills while developing their sense of values.

Center resources would be used to hire and support staff on a part-time basis, with the exception of a Center Director and related staff who would be employed full-time to help develop model program guidelines and standards, assess program outcomes, teach in-service classes for faculty, and serve as a communications link among education faculty and administrators in the regions.

AN ASSESSMENT OF UNDERGRADUATE EDUCATION IN AMERICAN COLLEGES OF AGRICULTURE

PART II: PERCEPTIONS OF GRADUATING SENIORS

Background Information

Much of the information regarding the **Historical Background, Purpose, Sample**, and **Methods and Procedures** for Part II of this study of undergraduate education in agriculture may be found in Part I of this report, pages 5-10.

Part II of the study was designed to identify the perceptions of graduating senior agriculture students regarding their attainment of job or graduate school entry-level skills. More specifically, the students were asked to rate their competence in each of the seven undergraduate objectives and to evaluate the extent to which curricular and extra-curricular activities in their college of agriculture had contributed to their attainment of the objectives. It should be noted that in Part I of the study, teaching faculty and administrators were also asked whether students generally attained job or graduate school entry-level skills in the objectives by the time of graduation.

While the exact number of surveys distributed to students is not known, each dean at the 50 cooperating institutions was asked to distribute thirty. Based on the assumption that the maximum number were distributed, the return rate was twenty-three percent. Spontaneous comments from a few of the deans who helped distribute the surveys suggest that not nearly that many were handed out. Also, the survey required considerable attention on the part of each student late in the semester when students were preparing for final examinations. Under the circumstances, the low rate of return is more understandable. Nonetheless, the rate of return was low.

The responses of students from the same institutions who returned their surveys early and late were compared to see if there were any response differences that were not institution specific. Those who returned their surveys in April and early May were compared with those who returned their surveys in late May and June. No differences were found. This finding at least to some degree enhances the confidence that may be placed in the validity of the results.

Method of Testing the Hypotheses

A four category scale ("None," "Some," "Minimum," and "Full") was used by students to rate their attainment of entry-level skills acquired in studies during their baccalaureate degree programs. In addition, students were asked to respond to another question. Those reporting that they had acquired at least "Some" competence were asked to evaluate the extent to which curricular and extra-curricular instruction in the college of agriculture had contributed to this competence. They used the rating scale "Directly", "Indirectly" and "Not At All."

It was postulated that students should reach "Full" job or graduate school entry level competence by graduation time and that instruction in the college of agriculture should contribute either "Directly" or "Indirectly," to their competency achievements.

Quality standards were developed and used to describe students' evaluations regarding the level of competence they possessed in the seven undergraduate objectives at the time of graduation, and to assess the contributions to this competence made through studies in their college of agriculture. The standards are reported in Table 10.

Table 10. Standards of Quality Used to Evaluate Students' Ratings of their Competence and of Study Programs in the Seven Undergraduate Objectives.

Standards	Classification Criteria
Student Competency Achievements	
Deficient	10 percent or more described competence as "None"
Minimum	75 percent or more described competence as "Minimum" or "Full."
College of Agriculture Program Contributions	
Deficient	10 percent or more responded "Not At All" to the contributions made by the college of agriculture to their competency achievements at time of graduation
Low	"Minimum" met plus <33 % at "Full" competence
Fair	"Minimum" met plus 33-49 % at "Full" competence
Good	"Minimum" met plus 50-74 % at "Full" competence
High	"Minimum" met plus 75 or more % at "Full" competence

The first two standards concerned student competency achievements. First, among those students who checked "None" in describing their competency achievements, where 10 percent or more of the students evaluated their competence in a particular objective as "None," the term "Deficient" is used to describe this competence. A second standard was used to determine whether or not the students felt they had achieved "Minimum" entry-level competence. When 75 percent or more of the students assigned at least a "Minimum" rating ("Minimum" or "Full") to their achievement of a competency, their competence was perceived as meeting "Minimum" standards, at least, in that particular area.

The last two standards applied to college of agriculture program contributions. Among those students who indicated that they had achieved "Some," "Minimum" or "Full" competence, when 10 percent or more checked that study programs in the college of agriculture had contributed "Not At All" to their competence, these programs are described as "Deficient."

The last standard was used to assess the degree to which students felt that they had achieved beyond the "Minimum" and had met "Full" entry-level competence. It was postulated that in "High" quality undergraduate programs at least 75 percent of the students should perceive that they had attained "Full" entry-level competence. Stated differently, 75 percent or more of the students had to have checked "Full" competence in order for their study programs to be labeled "High" quality. It was also postulated that in "Good" quality programs, 50 to 74 percent of the students would have checked "Full" entry-level competence. A "Fair" quality program classification required 33 to 49 percent of the students to have checked "Full" entry-level competence. When the number of student responses in the "Full" competence catagories was less than 33 percent, the program is described as "Low" quality.

Research Questions

1. To what extent do graduating senior agriculture students perceive that they achieved job or graduate school entry-level skill in the seven undergraduate educational objectives during their undergraduate programs?

2. To what extent do students perceive that their self-rated competence in each of the seven objectives was attributable to curricular or extra-curricular activities in the college of agriculture.

Research Hypotheses

1. Essentially all graduating senior agriculture students across regions will perceive that they have achieved "Full" competence in the seven undergraduate educational objectives.

2. Essentially all graduating seniors across regions will perceive that their competence in the seven objectives came "Directly" or "Indirectly" from curricular or extra-curricular activities in the college of agriculture.

A total of 341 graduating senior agriculture students returned useable surveys. Fifty-eight percent were from RICOP institutions and 42 percent from AASCARR institutions. Ninety-one percent were from 1862 land grant colleges and eight percent were from 1890 land grant colleges.

Sixty-five percent were male and 35 percent were female [Table 11]. The percentages of males to females was almost exactly 50/50 in the Northeast and Western Regions but considerably higher in the Southern and Central Regions. Ninety-three percent were "White" and seven percent were "Minority" students.

Table 11. Summary of Background Data Regarding College of Agriculture Graduating Senior Students Reported by Region.

Background Information	Number, and Percent Responses Rounded To The Nearest Whole Percent				
	National	Northeast	Central	Southern	Western
Number & Sex of Students					
Number	**341**	**49**	**107**	**130**	**55**
Percent Male	65	50	73	71	51
Percent Female	35	50	27	29	49
Pre-college Background					
Number	**334**	**46**	**106**	**129**	**53**
Percent Farm or Ranch	46	18	35	51	35
Percent Rural Non-Farm	23	42	24	22	24
Percent Suburban	23	38	26	20	26
Percent Urban	8	2	15	7	15

The pre-college background of students was: "Farm or Ranch," 46 percent; "Rural Non-Farm," 23 percent; "Suburban," 23 percent, and "Urban," eight percent. Higher percentages of students from the Southern and fewer from the Northeast Region had "Farm or Ranch" backgrounds. More students from the Northeast Region had "Rural Non-Farm" and "Suburban" backgrounds. More students from the Central and Western Regions had "Urban" backgrounds.

The three departments with the largest number of students responding were:

1. Agriculture,
2. Animal Science, and
3. Agricultural Communications.

The three majors with the largest number of students responding were:

1. Animal Science,
2. Agricultural Business Management, and
3. Environmental Resource Management.

Results and Discussion: Student Skills

Research Question 1. To what extent do graduating senior agriculture students perceive that they achieved entry-level skill in the seven undergraduate educational objectives during their undergraduate programs?

Hypothesis 1. Essentially all graduating senior agriculture students will perceive that they have achieved "Full" competence in the seven undergraduate educational objectives.

Hypothesis 1 was rejected for all competency areas for all objectives.

RESULTS

Professional, Technical and Agricultural Competence

Seventy-two percent of the students reported that they had achieved at least the "Minimum" level of career and job orientation competence [Tables 12 and 13]. Eighty-eight percent reached at least the "Minimum" competence levels for knowledge of specifics, and 82 percent for comprehension and evaluation. On the other hand, significant numbers of seniors reported that they had less than the "Minimum" level of competence. These were thought by many Deans of Resident Instruction and faculty to be the traditional objectives in which undergraduate studies in agriculture would be strongest and student achievements would be highest.

Table 12. Summary of Graduating Senior Agriculture Students' Evaluations of their Attainment of the Seven Undergraduate Educational Objectives.

Undergraduate Educational Objectives	Responses[1] in Percent, Rounded			
	NONE	SOME	MINIMUM	FULL
1. Professional, technical, and agricultural competence in:				
a. career and job orientation	3	24	40	32[b]
b. knowledge of specifics	1	11	43[a]	45[c]
c. comprehension and application	2	16	43[a]	39[c]
2. Critical thinking (analysis, synthesis and evaluation)	1	19	44[a]	36[c]
3. Communication skills including:				
a. writing	1	16	37[a]	46[c]
b. speaking	2	16	41[a]	41[c]
4. Microcomputer and computer skill:				
a. accessing the computer	9	34	35	22[b]
b. word processing	27	30	26	17[b]
c. spread sheets	36	29	21	14[b]
d. data base	45	30	18	7[b]
e. programming	32	36	23	9[b]
5. Values, including awareness of major agricultural, national, and international issues and the development of values	3	25	39	33[c]
6. Interpersonal skills	1	8	27[a]	64[d]
7. Leadership skills	2	11	32[a]	55[d]

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[1] Rounded to the nearest percentage point.

Meets [a]Minimum, [b]Poor, [c]Fair, and/or [d]Good quality standard.

Table 13. Summary of Quality Standards Assigned to College of Agriculture Undergraduate Programs.

Undergraduate Educational Objectives	Ratings of Program Outcomes[1]				
	Minimum	High	Good	Fair	Low
1. Professional, technical, and agricultural competence:					
a. career and job orientation					X
b. knowledge of specifics	X			X	
c. comprehension and application	X			X	
2. Critical thinking:					
a. analysis, synthesis and evaluation)	X			X	
3. Communication skills:					
a. writing	X			X	
b. speaking	X			X	
4. Microcomputer and computer competence:					
a. accessing the computer					X
b. word processing					X
c. spread sheets					X
d. data base					X
e. programming					X
5. Values, including awareness of major agricultural, national,and international issues and the development of values				X	
6. Interpersonal skills	X		X		
7. Leadership skills	X		X		

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[1] Based on students' ratings of their own competency achievements.

Critical Thinking

Only 36 percent of the graduating senior agriculture students felt they had achieved "Full" competence in critical thinking (analysis, synthesis and evaluation) [Table 12]. Eighty percent felt they had achieved to at least a "Minimum" level of competence while twenty percent rated their competence as less than "Minimum". Also, study programs were found to be "Deficient" for this objective [Table 13]. This was a competency area in which, according to several national studies, students were thought to be deficient.

Communication Skills

Results with regard to communication skills were not unlike the results for critical thinking. Only 46 and 41 percent of the respondents felt they had achieved "Full" competence in writing and speaking, respectively. A little more than 80 percent felt they had at least "Minimum" competence. Almost a fifth rated their competence as less than "Minimum." Once again, the undergraduate programs were found to be "Deficient" in these two competency areas. This was another competency area in which several national studies reported undergraduate study deficiencies.

Computer and Microcomputer Skills

In the area of computer and microcomputer skills, it is apparent respondents felt very deficient in all five of the basic skills listed. For four of the five sub-objectives, less than a fifth of the graduating seniors felt that they had achieved "Full" competence. No more than 57 percent of the respondents felt that they had achieved a "Minimum" level of competence for any one of the five listed skills. Conversely, from about a half to two-thirds rated their competence as less than "Minimum."

Values Development

Another area of competence in which many students perceived that they were "Deficient" was in the development of values, including awareness of major agricultural, national, and international issues. Only a third rated their competence as "Full." Approximately three-fourths reported at least "Minimum" competence. Slightly more than a fourth felt their competence was less than "Minimum."

Interpersonal and Leadership Skills

Compared to the other objectives, the respondents felt significantly more competent in interpersonal skills. Sixty-four percent felt that they had achieved "Full" competence. Ninety-one percent felt that they had at least a "Minimum" level of competence. Conversely, nine percent perceived that they had less than "Minimum" competence. The results were quite similar for leadership skills. Fifty-five percent felt they had "Full" competence.

Eighty-seven percent said they had at least a "Minimum" competence. Thirteen percent said they had less than a "Minimum" level of competence.

DISCUSSION

It was found that student competence in the seven study objectives, as perceived by graduating senior agriculture students, could be classified for the most part as meeting minimum standards. This was true for all listed competencies with the exception of career and job orientation, values development and the last four of the computer and microcomputer skills. For these latter competencies, study programs did not meet minimum standards. In addition, college programs were found to be deficient for the last four computer and microcomputer skills.

Finally, it was found that student achievements in none of the competencies met the standard for high quality programs. Their achievements in interpersonal skills and leadership skills met the standard for good quality programs. Their achievements in knowledge of specifics, comprehension and application, critical thinking, communications skills, and values development met the fair program standard. Student achievements in the career and job orientation and computer and microcomputer competence areas met only the low quality program standard. Viewed either from the perspective of the student or the institution and faculty, there is considerable room for improving baccalaureate degree competency achievements.

The over-riding conclusion which can be drawn from the graduating senior agriculture students' competency evaluations is that they did not perceive that they had achieved minimum levels of competence in six of the seven undergraduate educational objectives. The one exception was interpersonal skills. Also, students were deficient in computer and microcomputer skills. With one exception, accessing the computer, well over fifty percent of the graduating seniors were deficient in all computer related competencies. At least a fifth were deficient in critical thinking and communications skills. Almost a third indicated they were deficient in the development of values.

It had been expected that students might give themselves high ratings in the professional, technical and agricultural competency areas. This did not prove to be the case. A significant number of students felt that they had less than a minimum level of competence. Even for knowledge of specifics, a competency area which college of agriculture faculty were thought to be over-emphasizing, 12 percent of the students perceived that they had less than a minimum level of competence.

Student perceived deficiencies in the uses and applications of computers and microcomputers may not be as serious a problem as it appears to be on initial examination. The study was conducted at a time when many faculty and students were just getting involved with microcomputers in their undergraduate programs. In the meantime, the situation has changed. The introduction of microcomputers into baccalaureate degree programs by faculty has expanded rapidly. Even so, there are still large numbers of faculty who do not have even a rudimentary understanding of the educational applications of the microcomputer. Thus, faculty obviously will need additional and continuing professional development opportunities to be able to integrate the use of microcomputers into student learning activities.

It appears that the more crucial objectives in the improvement of undergraduate education programs are critical thinking, communication skills, and the development of values. Undergraduate curricula which emphasize the development of these competencies in the course of teaching the technology inherent to their programs very likely will have greatest over-all success in achieving the objectives of a well-rounded undergraduate baccalaureate degree education in agriculture.

Research Question 2. Do students perceive that their self-rated competence in each of the seven objectives was attributable to curricular or extra-curricular activities in the college of agriculture?

Hypothesis 2. Essentially all graduating seniors will perceive that their competence in the seven objectives resulted "Directly" or "Indirectly" from curricular or extra-curricular activities in the college of agriculture.

Hypothesis 2 was rejected for all competency areas for all objectives.

Responses of students to research question 2 and Hypothesis 2 are reported in Tables 14 and 15.

RESULTS

In evaluating student responses to the second research question and hypothesis, it should be remembered that a significant number of students felt "Deficient" in their achievement of entry-level competence in six of the seven undergraduate objectives. Thus, evaluations of the contributions made by instruction in the college toward perceived levels of competence among all students must bear this fact in mind.

Table 14. Summary of Graduating Senior Ratings of the Contributions of Curricular and Extra-curricular Activities in the College of Agriculture to Competency Achievements in Seven Undergraduate Educational Objectives.

	Responses in Percent[1], Rounded		
Undergraduate Educational Objectives	Not At All	Indirectly	Directly
1. Professional, technical, and agricultural competence in:			
a. career and job orientation	5	33	62
b. knowledge of specifics	2	17	81
c. comprehension and application	3	24	73
2. Critical thinking (analysis, synthesis and evaluation)	4	29	67
3. Communication skills including:			
a. writing	8	36	56
b. speaking	9	39	52
4. Microcomputer and computer skill:			
a. accessing the computer	16[a]	29	55
b. word processing	33[a]	31	36
c. spread sheets	35[a]	24	41
d. data base	43[a]	27	30
e. programming	35[a]	24	41
5. Values, including awareness of major agricultural, national, and international issues and the development of values	4	37	59
6. Interpersonal skills	9	55	36
7. Leadership skills	10[a]	50	40

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[1] Rounded to the nearest percentage point.

[a] Meets specified level of significance (10 percent or more "Not At All" responses).

Table 15. Summary of "Minimum" Program Standards Reported by Undergraduate Educational Objective.

Undergraduate Educational Objectives	"Minimum" Program Standard	
	Met	Not Met[1]
1. Professional, technical, and agricultural competence in:		
a. career and job orientation	X	
b. knowledge of specifics	X	
c. comprehension and application	X	
2. Critical thinking (analysis, synthesis and evaluation)	X	
3. Communication skills, including:		
a. writing	X	
b. speaking	X	
4. Microcomputer and computer competence:		
a. accessing the computer		X
b. word processing		X
c. spread sheets		X
d. data bases		X
e. programming		X
5. Values, including awareness of major agricultural, national, and international issues and the development of values	X	
6. Interpersonal skills	X	
7. Leadership skills		X

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[1] Ten percent or more students responded "Not At All" in describing the contributions of the college of agriculture to their competency.

Among the students who indicated that they had "Full," "Minimum" or "Some" competence in the "professional, technical and agricultural" skill areas, 95 percent or more reported that instruction in their college of agriculture contributed either "Directly" or "Indirectly" to their competence. Sixty to 80 percent noted that their perceived levels of competence were "Directly" attributable to college study activities. A fifth to a third felt their competence was "Indirectly" attributable to college instruction. Five percent or less thought college instruction contributed "Not At All" to their competence. It may be concluded that, to the extent graduating seniors were able to reach job or graduate school entry level skills in the professional, technical and agricultural competencies, college instruction was a significant factor.

Ninety-six percent of the students noted that college instruction contributed either "Directly" or "Indirectly" to their perceived level of competence in critical thinking. Only four percent felt the instruction contributed "Not At All" to their competence.

Ninety-two and 91 percent of the students felt that instruction in their college contributed either "Directly" or "Indirectly" to their perceived levels of competence in writing and speaking, respectively. The eight and nine percent who felt that college instruction contributed "Not At All" to their competence, closely approached the confidence level selected for testing the hypothesis. Both competencies are deserving of more careful attention in undergraduate study activities.

A significantly large number of students perceived college of agriculture instruction contributed "Not At All" to their competence in the five microcomputers and computers skill areas. There is little doubt that the graduating seniors in the Spring of 1987 felt that colleges of agriculture were not contributing as much to their competence as they should have been. This observation is compounded by the fact that significant numbers of students checked "None" for four of the five competencies when asked to assess their level of computer and microcomputer competence.

Ninety-six percent of the graduating seniors perceived instruction in the college of agriculture contributed either "Directly" or "Indirectly" to their competence in values including awareness of major agricultural, national and international issues. However, it should be remembered that 28 percent of these same students did not feel that they had achieved "Minimum" job or graduate school entry level competence.

Ninety-one percent of the graduating seniors felt that college of agriculture instruction contributed either "Directly" or "Indirectly" to the development of their interpersonal skills. Ninety percent felt the same way about leadership skills. In the latter case, a significant number checked "Not At All" when asked about the contributions of instruction in the college of agriculture toward their competence. In the former case, the numbers very closely approached significance. In both cases, it is apparent that colleges of agriculture need to pay greater attention to the development of these skills among their undergraduates.

Conclusions and Recommendations

Discussion

There is much evidence to support the conclusion that colleges of agriculture in the U.S. are contributing significantly to the competency achievements of baccalaureate degree graduates. Conversely, there is also considerable evidence to conclude that many graduates are not receiving a well-rounded undergraduate education.

Viewed from the perspective of the student, competency achievements in career and job orientation and microcomputer and computer skills were low and did not meet minimum standards. In those cases where the minimum standard was met, competency achievements were only fair for the technical and agricultural skill areas, critical thinking, communication skills, and the development of values. Competency achievements met the minimum standard and were rated good for interpersonal and leadership skill areas.

Students reported that the contributions of the college of agriculture to their leadership skills and to microcomputer and computer skills did not meet minimum standards. In the latter case, they did not come close to meeting the standard. It is entirely possible that students viewed leadership activities as being outside the curriculum.

The successful achievement of educational program outcomes requires that both faculty and students be oriented to the mission and objectives of the program. As noted previously, there was evidence to conclude that many students are not receiving a well-rounded education as outlined in the seven objectives. This most likely is because faculty are not mission and objective oriented. Thus, the faculty's apparent pre-occupation with the technology of their disciplines is in conflict with meaningful efforts to help students plan for and achieve desired program outcomes.

It is evident that many college of agriculture faculty have had little formal educational training. They have been educated in a particular agricultural discipline which places heavy emphasis on research and gives little attention to teaching. Most learn how to teach after they get their first job. They are, in effect, being asked to carry out educational functions that they do not understand. In point of fact, most graduate degree programs focus almost totally on professional courses and students' use of research laboratory equipment and procedures, and ignore or give only tacit attention to students' future teaching needs.

Recommendations

1. It is recommended that colleges of agriculture assume greater responsibility for graduate degree program standards. This responsibility should not be left entirely in the hands of the institution's graduate faculty. Everyone's responsibility can sometimes be no one's responsibility. Since many advanced degree recipients ultimately end up teaching, it is important that they receive basic education in the art and science of teaching. All graduates should take courses in "College Teaching" and "Course and Curriculum Development and Program Evaluation." Furthermore, each graduate student should receive at least one semester of supervised experience in teaching.

2. It is also recommended that newly hired faculty be provided with a carefully structured and organized orientation program which emphasizes (a) the importance of teaching and advising and (b) the availability of institutional resources in support of teaching and learning.

3. It is also recommended that Regional Faculty Development Centers be established and used by faculty on sabbatical leave. The centers could provide opportunities for wider faculty interaction and a greater variety of high quality faculty educational development activities.

4. It is recommended that RICOP, with the support of CAHA and the NASULGC, and AASCARR, give high priority to the development of a Model Statement of Undergraduate Educational Mission and Objectives and to the establishment of suggested program standards by which students' educational progress can be monitored.

AN ASSESSMENT OF UNDERGRADUATE EDUCATION IN AMERICAN COLLEGES OF AGRICULTURE

PART III: PERCEPTIONS OF OTHER UNIVERSITY STUDENTS

Background Information

Much of the information regarding the **Historical Background, Purpose, Sample**, and **Methods and Procedures** for Part III of this study of undergraduate education in agriculture may be found in Part I of the report, pages 5-10.

Purpose

Part III of the study was designed primarily to describe the perceptions of non-agriculture university students enrolled in the fifty institutions included in the study, regarding their perceptions of agriculture and the nature and importance of baccalaureate degree agricultural careers. A limited number of agriculture students were also interviewed.

The modern definition of the term "agriculture" includes not only the occupations of farming and ranching but also the much larger group of off-farm and off-ranch agricultural occupations. The latter occupations include those found in the related engineering, forestry, environment, business, biotechnology, horticulture, food, recreational industries. Since the end of World War II, graduates of baccalaureate degree agriculture programs have entered a wide variety of occupations. Today, less than ten percent of the graduates enter the occupations of farming and ranching. There are many excellent off-farm and off-ranch agricultural career areas.

At the time this study was initiated, the popular opinion among deans of resident instruction in colleges of agriculture in the U.S. was that (1) many pre-college and even college-age students viewed "agriculture" as being synonymous with farming and ranching, (2) that these students viewed "agriculture" careers as being lower in prestige, and (3) that these perceptions were leading some prospective students to give little consideration to the choice of the very attractive off-farm and off-ranch agricultural careers. Some of the deans felt that, if this was in fact the true perception of the college-age, non-agriculture students, it represented a major constraint to the recruiting, educating and graduating of baccalaureate degree agriculture graduates in sufficient numbers to meet the short-fall in projected agricultural employment needs (Coulter and Stanton, 1980). Thus, the study was designed to assess the perceptions of non-agriculture college students, persons who had made relatively recent career choices, with regard to the meaning and importance of "agriculture" careers.

Specifically, students were asked (1) to define the term "agriculture," (2) to describe the purpose of the college of agriculture at their institution, (3) to name three careers entered by college of agriculture graduates, (4) to rate the relative importance of agricultural careers in relation to other careers, (5) to evaluate the employment prospects of graduates of the college of agriculture in the succeeding five year period, and (6) to evaluate the importance of the agricultural sector to the role of the U.S. in a global economy.

Characteristics of Students in the Sample

A total of 1615 students were interviewed. Cooperating resident instruction deans had been asked to interview up to 50 students per institution. Sixty-four percent of the 1615 were from RICOP institutions and 36 percent from AASCARR institutions. Eighty-nine percent were enrolled at 1862 land grant universities. Eleven percent were enrolled at 1890 land grant universities. Fifty percent were male, and 50 percent female. Eighty-six percent were white students. Fourteen percent were minority students. About six percent were agriculture students.

The distribution of students with regard to academic year of enrollment was: freshmen, 18 percent; sophomore, 24 percent; junior, 26 percent; senior, 32 percent; and Graduate, one percent. The distribution of students with regard to pre-college background was: farm or ranch, 12 percent; rural non-farm, 24 percent; suburban, 38 percent; and urban, 26 percent.

The responding students were enrolled in a variety of departments and majors scattered through the university. The largest areas of enrollment were in business and engineering.

Research Questions

Six research questions were formulated and researched. They were:

1. Do non-agriculture university students perceive the term "agriculture" to be synonymous with "farming and ranching?"

2. What do non-agriculture students perceive the basic educational purpose of the college of agriculture to be?

3. What careers do non-agriculture university students perceive graduates of colleges of agriculture to be entering?

4. Do non-agriculture university students perceive agriculture careers to be higher or lower on the prestige scale as compared to college careers in general?

5. How do non-agriculture university students rate the employment prospects for agriculture graduates in the succeeding five year period?

6. How important do non-agriculture university students perceive the U.S. agricultural sector to be to the global economy?

Results and Discussion: Perceptions of Agriculture

Research Question 1: Do non-agriculture university students perceive "Agriculture" to be synonymous with "farming and ranching?"

Results

When asked to define the term "agriculture," seventy-two percent of the non-agriculture students used the descriptors "farming" or "ranching," or the very similar descriptor "crop and livestock production" [Table 16]. In contrast, 40 percent of the agriculture students also used these descriptors. Twenty-five percent of the non-agriculture students used the descriptors "farming or ranching plus "off-farm agricultural occupations," "food production and processing" or "agricultural business including sales and marketing" while 35 percent of the agriculture students used the same descriptors. Among the remaining smaller groups of respondents, descriptors such as "plants," "farm mechanics," "farm machinery," "natural resources and land use," "basic needs," and "hard work" were used.

Table 16 Summary of the Descriptors Most Frequently Used by University Students to Define Agriculture Reported in Number and Percent.

Descriptors Used To Define "Agriculture"	Ag and Non-Ag Students		Non-Ag Students		Ag Students	
	Number	Percent	Number	Percent	Number	Percent
1. Farming and Ranching	980	61	944	62	36	37
2. Farming and Ranching plus Off-Farm. Ag Occupations	197	12	14	14	183	12
3. Food Production and Processing	166	10	146	10	20	21
4. Crop and Livestock Production	67	4	64	10	3	3
5. Natural Resources and Land Use	35	2	29	2	6	6
6. Plants	23	1	23	2	0	0
7. Food and Fiber	17	1	17	1	0	0
8. Ag Business Including Sales and Marketing	20	1	18	1	2	2

Table percentages do not total 100 because students listed more than one career. Also, the smallest numbers of careers cited have not been included.

Descriptors used by non-agriculture students to define "agriculture" were classified into three broad catagories: "farming or ranching," "agricultural business" and "food processing." Student responses were compared based on background data, e.g., type of institution, sex, region, etc. There were no differences in the distribution of responses among the three broad catagories when comparing (1) RICOP and AASCARR institutions, (2) male and female students, and (3) minority and majority students.

A relationship was found in the responses of students from 1890 and 1862 Land Grant colleges. Significantly more 1890 students defined "Agriculture" using descriptors classified as "farming or ranching." Similarly, a significantly larger number of students located in the Western region of the U.S. used "food processing" descriptors to define "agriculture."

Student who used "agricultural business" descriptors to define "agriculture" had a significantly higher perception of the prestige of ag careers and of employment prospects. Conversely, those who used "farming or ranching" and "food processing" descriptors to define "agriculture" had significantly lower perceptions of the prestige of agricultural careers and of employment prospects, but they viewed the importance of agriculture to the global economy as being significantly higher. The latter was particularly true for the students who described "agriculture" as "food processing."

There was a significant relationship among the responses of non-agriculture students by class standing. From the freshmen to the seniors, increasingly fewer students used descriptors classified as "farming or ranching" to define "agriculture," and progressively and increasingly more used "agricultural business" descriptors.

Finally, regardless of type of background, whether it was "farm, rural non-farm, suburban or urban," three out of four non-agriculture students identified "agriculture" using descriptors classified as "farming or ranching."

Discussion

The meaning of the term "agriculture" has changed, as noted previously. In the earlier curricular history of most every college or school of agriculture in the U.S., the term "agriculture," by and large, meant preparation for careers in farming or ranching. During the fifties and sixties, after the number of farmers and ranchers in the workforce had declined to about five percent, employers in the newly emerging fields of agindustry as well as officials in colleges and schools of agriculture began drawing a distinction between farming and ranching and the related off-farm and off-ranch agricultural occupations. In point of fact, this is how the term "ag-industry" was coined. Thus, the definition of agriculture changed significantly in meaning. Nonetheless, the older definition, as can be see in the study results, has persisted outside, and to some extent inside, the agricultural community.

Viewed from the context of this historical background, the results for the first research question are not surprising in one respect and quite alarming in another. The fact that almost three fourths of the non-agriculture university students still think of agriculture as farming or ranching may be simply a reflection of the misconceptions of the recent past. On the other hand, the fact that 40 percent of the agriculture students defined agriculture in the same way is not as understandable, especially when note is given to their active involvement in agricultural studies with instructors who should know the difference. It may be that some agriculture faculty and agribusiness officials are contributing to this misperception by using the term "agriculture" interchangeably with farming and ranching. On the other hand, the results indicate that some university students have somehow learned to distinguish the difference during their undergraduate studies.

If the perceptions of the non-agriculture students in the sample are typical of prospective college students in general, then correcting the definition of agriculture represents a major educational problem for agricultural educators. It is quite possible that unless this misperception is corrected, especially within the agricultural community, the educational and manpower needs of all segments of the agricultural community may never be fully met.

Results and Discussion: Purpose of College of Agriculture

Research Question 2. What do non-agriculture students perceive to be the basic educational purpose of the college of agriculture?

Results

Seventeen percent of the non-agriculture students used the descriptor "Teach Technical Information" to describe the basic purpose of the college of agriculture. Only six percent of the agriculture students used this descriptor [Table 15]. Approximately 13 percent of all students used the descriptor "Teach a Combination of Areas" to describe the purpose. Sixteen percent of the non-agriculture students used "Farm Management" and "Public Awareness of Agriculture" as descriptors while 24 percent of the agriculture students used these descriptors.

Discussion

Students responses did not vary greatly from their perceptions of the meaning of "Agriculture." A sizeable number of non-agriculture college students, in particular, perceived the basic purpose of colleges of agriculture to be teaching agriculture technology.

It was interesting to note that many students, both non-agriculture and agriculture, described the purpose of the college of agriculture in terms of what they perceived as being taught by the faculty rather than what students were learning. If this is typical of students in general, it is another indication of the need for faculty to alter their teaching and advising techniques to help students focus educational responsibility on themselves.

Table 17. Summary of Descriptors Most Frequently Used by University Students to Describe Basic Purpose of the College of Agriculture.

Descriptors Used to Describe the Basic Purpose of the College of Agriculture	Ag and Non-Ag Students		Non-Ag Students		Ag Students	
	Number	Percent	Number	Percent	Number	Percent
1. Teach Technical Information about Crops and Livestock....	268	17	262	17	6	6
2. Teach a Combination of Agricultural Areas	205	13	191	13	14	14
3. Farm Management........	168	10	156	10	12	12
4. Public Awareness of Agriculture....................	96	6	84	6	12	12

Results and Discussion: Agricultural Careers

Research Question 3. What type of careers do non-agriculture university students perceive agricultural graduates to be entering?

Results

When asked to list three careers in which agriculture graduates gained employment following graduation, 49 percent of the non-agriculture students used descriptors classified as "Farming and Ranching" as a first choice. Thirty-one and 23 percent listed it as a second and third choice, respectively. Thirty-six percent of the agriculture students listed "Farming or Ranching" as a first choice. Another 26 percent and 17 percent listed it as their second and third choice, respectively.

While there was some recognition by students of off-farm and off-ranch agricultural careers in defining the term "Agriculture," the number of non-agriculture students who mentioned careers of this type were very few in number.

Discussion

The popular perception among non-agriculture and agriculture students is that agriculture graduates are employed largely in farming or ranching following graduation. While a wide variety of available careers was noted among the responses, no other career choice came close in number to farming and ranching.

The fact is that less than seven percent of the graduates of baccalaureate degree agriculture programs in the land grant colleges of agriculture in the U.S. entered Farming and Ranching during the 1985-86 academic year (15:1987). It is apparent that many college students are unaware of the availability of large numbers of off-farm and off-ranch agricultural careers. Also, there seems to be little doubt that many prospective college students do not know about the diversity of these agricultural careers. This lack of perception needs to be addressed by agricultural educators if the employment needs of the off-farm and off-ranch agricultural industries are to be met.

Results and Discussion: Prestige of Agricultural Careers

Research Question 4. Do non-agriculture university students perceive agriculture careers to be higher or lower on the prestige scale as compared with college careers in general?

Results

Seventy-one percent of the non-agriculture students surveyed rated "Ag Careers" as being "Lower," in prestige than other careers, and 21 percent noted that they were "Higher" [Table 18]. Fifty-two percent of the agriculture students noted that "Agriculture" careers were "Lower" in prestige and 41 percent reported that they were "Higher." Twice as many agriculture students rated "Agricultural Careers" as being "Higher" on the "Prestige Scale" than did non-agriculture university students. Ag Careers were rated "Lower" by three out of every four non-agriculture students and one out of every two agriculture students.

Table 18. Responses of Students to the Importance of Agricultural Careers.

	Number and Percent Responses, Rounded		
Prestige of Ag Careers	Ag and Non-Ag Students	Non-Ag Students	Agriculture Students
Number	**1574**	**1478**	**96**
Higher	21	20	41
Lower	71	72	52
Average or Equal	8	8	7

Discussion

Agriculture careers are perceived to be lower in prestige by both agriculture and non-agriculture university students. There seems to be little doubt that this perception is having a negative impact on the recruitment, enrollment, and education of many who would pursue careers in agriculture if they understood the nature of the career opportunities.

Results and Discussion: Employment Prospects

Research Question 5. How do non-agriculture university students rate the employment prospects for agriculture graduates in the succeeding five year period?

Results

Over half of all students who responded to the survey rated employment prospects for agriculture graduates as being "Fair" or "Poor" [Table 19]. When the responses of agriculture and non-agriculture students were compared, two out of every three non-agriculture students perceived "Employment Prospects" in the succeeding five year period to be "Fair" or "Poor." One of two agriculture students drew the same conclusion.

Table 19. Students' Perceptions of Employment Prospects for Agriculture Graduates During the Succeeding Five Year Period, by Number and Percent.

	Number and Percent Responses, Rounded		
Employment Prospects	Ag and Non-Ag Students	Non-Ag Students	Agriculture Students
Number	**1605**	**1504**	**96**
Excellent	7	8	6
Good	41	24	40
Fair	38	44	39
Poor	14	24	14

Discussion

College students had lower perceptions of the employment prospects for agriculture graduates in the succeeding five year period. This is understandable considering the fact that so many students perceived agriculture to be synonymous with farming and ranching, where employment opportunities continue to decline.

Of particular concern, however, is the fact that so many of the agriculture students, one in two included in the sample, perceived employment prospects in agriculture to be lower. These perceptions are out of line with popular opinion among college faculty and agindustry representatives. One would expect enrolled agriculture students to be better informed. It is quite conceivable that many of them, like the non-agriculture students, perceive their programs of studies to be leading toward farming or ranching careers, thus, employment prospects appear lower.

Correcting and/or improving the perception of the employment prospects for college of agriculture graduates among prospective college students should be given priority consideration by college recruiters. In addition, enrolled agriculture students need to learn about employment opportunities early in their programs of study. This could, in turn, influence non-agriculture students to consider agricultural careers as they learn more about these careers from their classmates and as they change career plans.

Results and Discussion: Ag Sector in the Global Economy

Research Question 6. How important do non-agriculture university students perceive the U.S. agricultural sector to be to the global economy?

Results

Seventy-three percent of all students surveyed reported that "agriculture" was "Very Important" to the global economy [Table 20]. Another 23 percent noted that it was of "Moderate Importance." Only four percent said it was of "Low Importance," and none said it was of "No Importance."

Discussion

The results, when contrasted with students' perceptions of the importance of agricultural careers and of employment prospects, offer additional insight into their feelings. Generally, their belief is that undergraduate degree programs in agriculture lead to lower prestige careers with relatively poorer employment prospects, but conversely those employed in these careers play an important role in the global economy.

Table 20. Students' Perceptions of the Importance of the Agricultural Sector to the Role of the U.S. in the Global Economy.

Rating Scale	Number and Percent Responses, Rounded Ag and Non-Ag Students	Non-Ag Students	Agriculture Students
Number	**1615**	**1513**	**96**
Very Important	73	72	9
Moderately Important	23	24	9
Low Importance	4	4	1
No Importance	0	0	0

The term "agriculture" is used interchangeably with "farming and ranching." This is true not only for college students in general but also for college of agriculture students. Also, farming and ranching are generally perceived as lower prestige careers while off-farm and off-ranch agricultural occupations are generally perceived as higher prestige careers. Therefore, it is important that the distinction in the definitions be carefully drawn and publicized among prospective undergraduate students in order that they may be in a better position to make career choices.

Conclusion and Recommendations

Conclusions

1. Three out of four non-agriculture university students interviewed perceived agriculture to be synomymous with farming or ranching or crop and livestock production. One out of two agriculture students had the same perception. There is good reason to believe that many prospective college students hold incorrect perceptions of careers available in agriculture and very likely are not giving consideration to career fields that could be of interest to them.

2. Many non-agriculture university students perceive that the purpose of the college of agriculture is to teach agricultural technology, which they equate with farming and ranching. Surprisingly, a high percentage of agriculture students felt the same way. This was particularly true among students in the earlier years of university enrollment.

3. Both non-agriculture and agriculture university students perceived agricultural graduates to be entering farming and ranching careers even

though less than seven percent of college graduates are entering these careers.

4. Two thirds of the non-agriculture university students perceived the employment prospects for agricultural graduates to be less than good. Over half of the agriculture students held the same perception.

5. Seventy-five percent of all university students interviewed perceived that the agricultural sector was important to the global economy.

6. The evidence of this study points out that college students, and most likely the public in general, has failed to distinguish the difference between farming or ranching and the many off-farm and off-ranch agricultural careers. Thus, the term agriculture conveys the negative connotations associated with farming and ranching.

Recommendations

It is recommended that RICOP with the support of the National Association of State Universities and Land Grant Colleges (NASULGC) establish a national commission to study ways of clarifying the distinctions in the definitions of agriculture, and of farming and ranching, especially among prospective college students. The charge to the commission should be to develop a plan outlining alternative strategies for informing prospective students of the correct meaning of agriculture and about the attractive off-farm and off-ranch agricultural careers.

Also, colleges of agriculture should give consideration to changing their name to more accurately reflect the types of careers in which their graduates become employed. For example, "College of Food and Agriculture," or "College of Food, Agriculture and the Life Sciences," or "College of Agriculture and Renewable Natural Resources" would more accurately communicate to prospective students the diversity of careers reflected in the majors of the many college than does "College of Agriculture."

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APPENDIXES A-E

Appendix "A"

Statement of Undergraduate Educational Mission

Educational programs in the College of Agriculture should serve the present and future needs of society and of students interested in pursuing careers associated with the production, processing, and distribution of food and fiber, resource management, and rural living. The needs of students, as they prepare for lifetimes as contributing members of society, are the bases upon which the educational programs of the land-grant system should be built.

The land grant philosophy recognizes that student needs are constantly changing and that educational programs, therefore, must change. The outcomes or successes of educational programs must be measured in terms of student competencies. Included among the competencies are those of writing clearly, speaking effectively and identifying, defining, and seeking satisfactory solutions to problems encountered personally and professionally. In addition, most persons will attain positions of leadership during their careers. Consequently, students should be provided opportunities to develop competencies needed to manage interpersonal relationships and to become effective leaders.

Preamble

The individual faculty member and the department which that person represents are integral parts of the larger College of Agriculture and university faculties. A cooperative effort by faculty members at all levels striving for recognized and common objectives, is the mechanism by which the proper learning environment and educational programs are defined and implemented.

Students should perceive themselves to be responsible for developing their educational programs, with assistance from faculty. Students should accept the challenge of group and independent study, and strive to develop an effective life-long learning pattern rather than to just get a grade and/or get a degree.

Teaching should be aimed at meeting the needs of the individual student. Teaching methods should emphasize the development of proficiency in the various competencies aided by appropriate assessment.

Appendix "B"

Undergraduate Educational Objectives[1]

Primary Objectives

Objective 1. The development of professional, technical and agricultural competence

a. Professional competence:
- + Knowledge of different careers in the major(s)
- + Knowledge of the general job requirements in the major(s)
- + On-the-job orientation to the profession, internships

b. Technical competence:
- + Knowledge of specifics, including:
  - * Facts and other data or information related to the major
  - * Fundamentals used in problem solving
  - * Formula, equations, and other basic scientific tools

c. Applied agricultural competence:
- + Comprehension of basic facts and information in the major
- + Translating
- + Interpreting
- + Extrapolating
- + Application of basic facts, formula, equations and information to solve problems

Objective 2. The development of critical thinking competence

a. Scientific competence:
- + Analysis of basic facts, data, and information:
  - * Examination of elements
  - * Examination of relationships
  - * Search for basic organizational principles
- + Synthesis of basic facts, data and information:
  - * Production of unique communication
  - * Production of a plan or prepared set of operations
  - * Derivation of a set of abstract relationships
- + Evaluation of outcomes:
  - * Judgments in terms of internal evidence
  - * Judgments in terms of external evidence
  - * Problem solving requiring critical internal and external judgments

Supporting and Enabling Objectives

Objective 3. The development of communication competence

a. Writing competence:
  + Ability to write with clarity
  + Ability to communicate effectively with others in writing

b. Speaking competence:
  + Ability to speak with clarity
  + Ability to communicate effectively with others in speaking

Objective 4. The development of microcomputer and/or computer competence

a. Computer competence:
  + Accessing the computer
  + Word processing
  + Spread sheets
  + Data bases
  + Programming

Objective 5. The development of values

a. Receiving (attending to concerns & issues associated with major)
  + Awareness
  + Willingness to receive (listen)
  + Controlled or selected attention

b. Responding (concerns, issues, etc. associated with the major)
  + Acquiescence in responding
  + Willingness to respond
  + Satisfaction in response

c. Values (associated directly or indirectly with the major):
  + Acceptance of values, concerns, issues, etc.
  + Preference for values, concerns, issues, etc.
  + Commitment to values, concerns, issues, etc.

Supporting and Enabling Objectives (Continued)
Objective 5. The development of values (Continued)

- d. Organization of a value or value system:
  - + Conceptualization of a value
  - + Organization of a value system

- e. Characterization by a value or value complex:
  - + Has developed a generalized set of values
  - + Is known to possess a standard of values

Objective 6. The development of interpersonal skills.

- a. Awareness of the needs of others
- b. Considerate of the needs of others
- c. Positive feeling of self worth
- d. Constructive in opinions and judgments
- e. Gets along well with others

Objective 7. The development of leadership skills.

- a. Ability to organize small groups
- b. Ability to organize large groups
- c. Ability to set group goals
- d. Ability to achieve group goals
- e. Ability to lead small and large groups (basic parliamentary rules)

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[1] Adapted from Taxonomy of Educational Objectives: Cognitive Domain, B. S. Bloom, et al., and Taxonomy of Educational Objectives: Affective Domain, D. R. Krathwohl, B. S. Bloom, and B. B. Masia.

Appendix "C"

NATIONAL ASSESSMENT OF UNDERGRADUATE EDUCATION IN AGRICULTURE
FACULTY SURVEY

Part I: Biographical and Background Data

1. Faculty member's name: ______________________________

2. Institution: ______________________________

3. Department: ______________________________

4. Current academic rank (Check One):
   a. Assistant Professor: __________
   b. Associate Professor: __________
   c. Professor: __________

5. Are you currently serving as a department head, director of a school, program head, or program coordinator?
   a. Yes: __________
   b. No: __________

6. Tenure status:
   a. Tenured: _____
   b. In tenure track: _____
   c. In non-tenure track: _____

7. Specify the number of months per year that you work:
   a. _____ Months per year

8. Highest earned degree (Check One):
   a. Baccalaureate: _____
   b. Masters: _____
   c. Doctorate: _____

9. What is the terminal degree for your profession?
   a. Baccalaureate: _____
   b. Masters: _____
   c. Doctorate: _____

10. Pre-college background (Check One):
    a. Farm or ranch: _____
    b. Rural non-farm: _____
    c. Suburbia: _____
    d. Urban: _____

11. How many years of industry experience related to your academic profession have you had?
    a. ___Years

12. Total number of academic years in which you have taught one or more courses at any level (Elementary, secondary or college):
    a.___Years

13. Average annual work assignment for the last five years as a percentage of full-time:
    a. Teaching: _____
    b. Research: _____
    c. Extension: _____
    Full-time: 100 %

14. Number of semesters or terms served as a graduate teaching assistant:
    a. ___Semesters and/or______Terms

15. Total number of "Education" credits earned:
    a. ___Semesters and/or______Terms

16. Total number of "Curriculum Development" credits earned:
    a. ___Semesters and/or______Terms

Appendix "C" (Continued)

Part II: Educational Program Data

1. Does your College or Department have a written statement of undergraduate educational mission and objectives? If you have questions about what a mission statement might look like or what the definition of objectives might be, please refer to the mission statement and objectives attached to this survey.

   a. College mission statement: Yes_ No___Don't Know______
   b. College objectives: Yes_ No___Don't Know______
   c. Department mission statement: Yes_ No___Don't Know______
   d. Department objectives: Yes_ No___Don't Know______

If any of your responses were "Yes" for question 1, proceed with questions 2 and 3. If all of your responses were "No" or "Don't Know" in question 1, proceed to question 4.

2. Do faculty in general in your department have a working knowledge of the mission statements and objectives?

   a. College mission statement: Yes_ No___Don't Know______
   b. College objectives: Yes_ No___Don't Know______
   c. Department mission statement: Yes_ No___Don't Know______
   d. Department objectives: Yes_ No___Don't Know______

3. From memory, could you, if asked at this moment, generally describe the educational missions and list the undergraduate educational objectives of your College and Department?

   a. College mission statement: Yes_ No___
   b. College objectives: Yes_ No___
   c. Department mission statement: Yes_ No___
   d. Department objectives: Yes_ No___

4. Do you agree that the (a.) college faculty and (b.) department faculty bear the primary responsibility for specifying the undergraduate educational objectives?

   a. College objectives: Yes_ No___
   d. Department objectives: Yes_ No___

Appendix "C" (Continued)

5. Do you agree that the (a.) college faculty and (b.) department faculty bear the primary responsibility for monitoring students' attainment of these objectives?

   a. College objectives: Yes_______No_______
   d. Department objectives: Yes_______No_______

6. In what ways do you feel faculty can monitor students' attainment of these objectives?

   a. By periodically helping advisees/students inventory and assess their skills and abilities, objective by objective.
   Yes_______No_______

   b. By helping advisee/students to select courses that will enhance skill and abilities, objective by objective.
   Yes_______No_______

   c. By designing the learning opportunities in courses in the major to help students develop the needed skills and abilities.
   Yes_______No_______

   d. By reinforcing the development of the following skills and abilities in Department courses:
   + Critical thinking skills (problem solving)................. Yes____No____
   + Communication skills.. Yes____No____
   + Computer skills... Yes____No____
   + Values regarding major ag issues................................ Yes____No____
   + Interpersonal skills... Yes____No____
   + Leadership skills... Yes____No____

   e. By providing extra-curricular opportunities for students to develop needed skills and abilities, especially leadership and interpersonal skills.
   Yes_______No_______

7. Other than job placement, have any assessments been made of degree program outcomes in your college or department? That is, have graduates been asked during the past five years to assess their attainment of basic college and/or department objectives?
Yes__ No____ Don't Know_____
If your answer is "Yes" list the basic criteria assessed:_________
____

8. Are there "Course and Curricula" committees in your College and Department?
a. College: Yes_ No__Don't Know_____
b. Department: Yes_ No__Don't Know_____

9. How often do the "Course and Curricula" committees meet?
a. College: _____Times per year;______Don't Know
b. Department: _____Times per year;______ Don't Know

10. How often do the college and department faculties meet?
a. College: _____Times per year;______Don't Know
b. Department: _____Times per year;______ Don't Know

11. How effectively are the communication channels used for educational change?
a. College: Excellent___Good___Fair___Poor___Don't Know
b. Department: Excellent___Good___Fair___Poor___Don't Know

12. What rating would you give your (a.) college and (b.) department faculty in attending to curricular changes?
a. College: Excellent___Good___Fair___Poor___Don't Know
b. Department: Excellent___Good___Fair___Poor___Don't Know

13. Does the university, college, or department sponsor faculty development activities designed to improve advising, counseling, teaching, and/or curriculum building skills?
Yes__ No____ Don't Know_____

14. If you answered "Yes" to question 13, do you consider the faculty development activities sufficient to meet your educational (curricular, teaching, and advising) needs?
Yes__ No____

Appendix "C" (Continued)

Part III: Faculty Members' Perceptions of Selected Undergraduate Educational Objectives.
Before responding to the five questions found below, please review the seven objectives and sub-objectives attached. (In this document, refer to Appendixes A and B.)

	←PRIMARY OBJECTIVES[1]→				←SUPPORTING AND ENABLING OBJECTIVES[1]→									
	ONE			TWO	THREE		FOUR					FIVE	SIX	SEVEN
	Professional, Technical & Agricultural Competence			Critical Thinking	Communications		Microcomputer and Computer Skills					Values	Inter-personal Skills	Leader-ship Skills
	Professional	Technical	Agricultural	Scientific										
Questions	Career and Job Orientation	Knowledge of Specifics	Comprehens'n Application	Analysis Synthesis Evaluat'n	Writing	Speaking	Accessing Computer	Word Processing	Spread Sheets	Data Base	Prog-ram-ing	Aware of Major Agricultural National and Internat'l Issues & Dev. of Values	Social Matur'y	Ability to Org-anize
Answer each of the following questions either "No" or "Yes":														
1. Essential for a well-rounded undergraduate education?[1]	No__ Yes__	No__ Yes__	No__ Yes__	No__ Yes__	No__ Yes__	No__ Yes__	No__ Yes__	No__ Yes__	No__ Yes__	No_ Yes_	No_ Yes_	No__ Yes__	No__ Yes__	No__ Yes__
2. Students of majors in my department generally attain minimum job or graduate school entry level competence by the time they graduate?	No__ Yes__	No__ Yes__	No__ Yes__	No__ Yes__	No__ Yes__	No__ Yes__	No__ Yes__	No__ Yes__	No__ Yes__	No_ Yes_	No_ Yes_	No__ Yes__	No__ Yes__	No__ Yes__
3. Do you posses the ability to teach?	No__ Yes__	No__ Yes__	No__ Yes__	No__ Yes__	No__ Yes__	No__ Yes__	No__ Yes__	No__ Yes__	No__ Yes__	No_ Yes_	No_ Yes_	No__ Yes__	No__ Yes__	No__ Yes__
4. Do faculty in your department possess the collective ability to teach?	No__ Yes__	No__ Yes__	No__ Yes__	No__ Yes__	No__ Yes__	No__ Yes__	No__ Yes__	No__ Yes__	No__ Yes__	No_ Yes_	No_ Yes_	No__ Yes__	No__ Yes__	No__ Yes__
5. List undergraduate courses taught during the last five years and rank the attainment[2] of each objective by students in your courses. Bear in mind that not every course in each major is expected to address all seven objectives.														
a.____________________														
b.____________________														
c.____________________														
d.____________________														
e.____________________														

[1] A detailed definition and explanation of the objectives is attached. (In this document, refer to Appendices A and B)

[2] **None:**	Essentially no knowledge or competence acquired during the baccalaurate degree program
Some:	Limited knowledge and competence acquired but not job or graduate school entry level skill
Minimum:	Sufficient knowledge and competence acquired to meet entry level skill
Full:	Knowledge and competence acquired above job or graduate school entry level skill

Appendix "D"

NATIONAL ASSESSMENT OF UNDERGRADUATE EDUCATION IN AGRICULTURE
GRADUATING SENIOR STUDENT SURVEY
Spring 1987

1. Student Name: ____________________
2. College Address: ____________________
3. Home Address: ____________________
4. College Phone: ____________________
5. Home Phone: ____________________
6. Name of University (College): ____________________
7. Sex: M____ F____
8. Age (at Graduation): ______
9. Race: ___
10. Pre-College Background (Check One):
    a. Farm or Ranch _____
    b. Rural Non-Farm _____
    c. Suburban _____
    d. Urban _____
11. Total Number of Semesters or Terms Attended College in Baccalaureate Degree Program:
    a. Semesters ______
    b. Term ______
12. Total Number of Semesters or Terms Resided at Home During Baccalaureate Degree Program:
    a. Semesters ______
    b. Term ______
13. College (or School): ____________________
14. Department (or Division): ____________________
15. Major(s): ____________________
16. Minor(s) or Collateral Field(s): ____________________
17. High School Grade Point Average: ________
18. Latest College Cumulative Grade Point Average: __________
19. Total Credits Required for Graduation in the Major: ________
20. Total Credits Earned Toward Baccalaureate Degree at the End of the 1987 Spring Semester (or Term): _________
21. Total Number of Credits Earned on Branch Campuses or Transferred by the End of the 1987 Spring Semester (or Term): __________

Appendix "D" (Continued)

22. Total Number of Internship Credits Earned by the End of the 1987 Spring Semester (or Term):__________
23. How Many Internship Credits Were Earned in a Foreign Country by the End of the 1987 Spring Semester (or Term)?: ________
24. Total Months of Full-Time Work Experience Before & During College:___
25. Total Months of Part-Time Work Experience Before & During College:___
26. List All Club Memberships Before Enrolled in College:________________

____

27. List All Club Memberships While Enrolled in College:_________________

____

28. List All Offices Held While Enrolled in Secondary School and College:___

____

29. Placement and Counseling Activities in Which You have Participated in College:
   a. Career Counseling: Yes__ No___
   b. Career Courses: Yes__ No___ No. Credit Hours:_____
   c. No. Job Interviews:____ Arranged Through (Name of Office):__________

____

____

30. Total Number of Seminar and/or Colloquium Courses or Other Courses (Which Focused on Important Agricultural Issues and Which Required Verbal Interaction) Taken During:
   a. Freshman Year: No. of Courses______, Total Credit Hours:______
   b. Sophomore Year: No. of Courses______, Total Credit Hours:______
   c. Junior Year: No. of Courses______, Total Credit Hours:______
   d. Senior Year: No. of Courses______, Total Credit Hours:______
31. Total Credit Hours Completed in Foreign Languages by the Time of Graduation:
   a. French: Semester Credit Hours_____ ;Quarter Credit Hours_____
   b. Spanish: Semester Credit Hours_____ ;Quarter Credit Hours_____
   c. German: Semester Credit Hours_____ ;Quarter Credit Hours_____
   d. Russian: Semester Credit Hours_____ ;Quarter Credit Hours_____
   e. Chinese: Semester Credit Hours_____ ;Quarter Credit Hours_____
   f. Japanese: Semester Credit Hours_____ ;Quarter Credit Hours_____
   g. _______ : Semester Credit Hours_____ ;Quarter Credit Hours_____
   h. _______ : Semester Credit Hours_____ ;Quarter Credit Hours_____
32. Date of Initial Enrollment in College:____________________________
33. Date (or Projected Date) of Graduation as a B.S. Degree Student:______

Appendix "D" (Continued)

Part II: Students' Perceptions of Their Attainment of Seven Selected Undergraduate Educational Objectives.
Before responding to the questions, please review the seven objectives and sub-objectives attached. (In this document, refer to Appendixes A and B)

	PRIMARY OBJECTIVES[1]				SUPPORTING AND ENABLING OBJECTIVES[1]									
	ONE			TWO	THREE		FOUR					FIVE	SIX	SEVEN
	Professional, Technical & Agricultural Competence			Critical Thinking	Communications		Microcomputer and Computer Skills					Values	Interpersonal Skills	Leadership Skills
	Professional	Technical	Agricultural	Scientific										
QUESTIONS	Career and Job Orientation	Knowledge of Specifics	Comprehens'n Application	Analysis Synthesis Evaluat'n	Writing	Speaking	Accessing Computer	Word Processing	Spread Sheets	Data Base	Programming	Aware of Major Agricultural, National and Internat'l Issues & Dev. of Values	Social Matur'y	Ability to Organize
[1] **Please review the definition of objectives found on the next three pages before responding.** (In this document refer to Appendixes A and B)														
QUESTION ONE Using the ranking scale described below (None, Some, Minimum and Full)[2], rank the degree to which you perceive that you have attained each objective during your baccalaurate degree program, by circling the appropriate choice. If at any point you are uncertain about the meaning of an objective, refer to the attached definitions before responding.														
	None Some Minimum Full	None Some Minimum Full	None Some Minimum Full	None Some Minimum Full	None Some Min. Full	None Some Min. Full	None Some Minimum Full	None Some Minimum Full	None Some Min. Full	None Some Min. Full	None Some Min. Full	None Some Minimum Full	None Some Min. Full	None Some Min. Full
QUESTION TWO In the columns under each objective where you have indicated "Some," "Minimum" or "Full" competence, please use the evaluation scale below ["Not At All" (NAA), "Indirectly" (IND) or "Directly" (DIR)][3] to estimate (by circling the appropriate response) the extent to which instruction in courses or other curricular or extra-curricular activities in the college or school of agriculture contributed to your competence.														
	NAA IND DIR	NAA IND DIR	NAA IND DIR	NAA IND DIR	NAA IND DIR	NAA IND DIR	NAA IND DIR	NAA IND DIR	NAA IND DIR	NAA IND DIR	NAA IND DIR	NAA IND DIR	NAA IND DIR	NAA IND DIR

[2] **Ranking Scale**

None:	Essentially no knowledge or competence acquired during the baccalaurate degree program
Some:	Limited knowledge and competence acquired but not job or graduate school entry level skill
Minimum:	Sufficient knowledge and competence acquired to meet entry level skill
Full:	Knowledge and competence acquired above job or graduate school entry level skill

[3] **Evaluation Scale**

Not At All:	Instruction in the College or School of Agriculture did not contribute to my competency
Indirectly:	Instruction in the College or School of Agriculture contributed indirectly to my competency
Directly:	Instruction in the College or School of Agriculture contributed directly to my competency

Appendix "E"

NATIONAL ASSESSMENT OF UNDERGRADUATE EDUCATION IN AGRICULTURE
RANDOMLY CHOSEN STUDENT SURVEY[1]

1. What does the term "agriculture" mean to you? (Let the Interviewee answer the question. Do not offer the choices as listed below. They are for the convenience of the interviewer only.)
   a. Farming or Ranching: ________________________________
   b. Farming or Ranching plus Off-farm Agricultural Occupations: _______
   c. Other (Please Specify): ________________________________

2. Using one brief statement, how would you describe the basic educational purpose of the College or School of Agriculture?____________________
____

3. Name the three careers which College or School of Agriculture graduates at your institution most frequently enter. (If the interviewee can think of only one or two, make a note to this effect in the blank spaces. Again, do not offer career choices.
   a. ____
   b. ____
   c. ____

4. Are these careers located Higher or Lower on the prestige scale as compared with college careers in general?
   a. Higher:____
   b. Lower: ____

5. Would your college peers agree with your rating?
   a. Yes: _____
   b. No: _____

6. How do you perceive the employment prospects for the next five years for baccalaureate degree graduates of the College or School of Agriculture?
   a. Excellent: _____
   b. Good: _____
   c. Fair: _____
   d. Poor: _____

7. What is your perception of the percent of the total undergraduate enrollment in the College or School of Agriculture?
   a. From Farms or Ranches: _____percent
   b. Women: _____percent
   c. Minorities: _____percent

8. How important is the American agricultural sector to the role of the United States in a global economy?
   a. Very Important: _____
   b. Moderately Important: _____
   c. Low Importance: _____
   d. No Importance: _____

Biographical Information about the Respondent:

9. Sex:
   a. Male: _____ b. Female_

10. Race:
    a. Majority: _____
    b. Minority: _____

11. Current enrollment status:
    a. Freshman: _____
    b. Sophomore: _____
    c. Junior: _____
    d. Senior: _____

12. Major(s) (please specify):
    a. ____
    b. ____

13. College or school of enrollment (please specify): ______________
____

14. Primary pre-college residence:
    a. Farm or Ranch: _____
    b. Rural Non-Farm: _____
    c. Suburban: _____
    d. Urban: _____

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[1] Answers to survey questions to be obtained by interviewing students.